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ORIGINAL ARTICLES

THE ANTIDIURETIC EFFECT OF THE OXYTOCIC AND PRESSOR PRINCIPLES OF THE EXTRACT OF THE POSTERIOR LOBE OF THE PITUITARY

BY S. L. GARGLE, M.D., D. R. GILLIGAN, AND H. L. BLUMGART, M.D.*

INTRODUCTION

It is a well established fact that subcutaneous injection of the extract of the posterior lobe of the pituitary relieves the thirst and polyuria of patients with diabetes insipidus. The recent separation by Kamm and associates[1] of the extract of the posterior lobe of the pituitary into two parts, one having a pressor, and the other an oxytocic action, has raised the interesting question as to which fraction is responsible for the antidiuretic effect of pituitary extract. The results of animal experimentation are not closely analogous to clinical experience. The present studies have, consequently, been carried out directly on man. The effect of the subcutaneous injection of the oxytocic and pressor principles on water diuresis has been observed in four normal individuals and in two patients with diabetes insipidus.

NORMAL SUBJECTS

Method: The normal subjects were given constant salt and protein diets, and the fluid intake and urinary output were carefully measured. After 24 hours on this regime a liter of water was given at 7 a. m., and the urine was collected hourly for seven hours, basal conditions being maintained by omitting breakfast and delaying lunch until 2 p. m. The next day 0.25 cc. of vasopressin were given hypodermically when the liter of water was taken at 7 a. m. The following day the same procedure was repeated, except that oxytocin was substituted for vasopressin.

Effect of Vasopressin and Oxytocin on Water Elimination Curve. In Figures I, II, III and IV are charted the urinary outputs of the four normal subjects after drinking a liter of tap water. The effect of vasopressin and oxytocin upon the urinary output is also shown.

In 1922, Weir, Larson and Rowntree[5] pointed out that subcutaneous administration of pituitary extract definitely checked the occurrence of water diuresis in normal man. Our results are in harmony, since a single dose of 0.25 cc. of vasopressin delayed onset of diuresis for five hours in J.D., and for four to five hours in W.E., A.R., and D.L. By the end of seven hours, W.E. (Fig. I) excreted only 38 per cent. of the liter of water, while without medication he excreted almost 100 per cent. within four hours. J.D. (Fig. II) excreted 88 per cent. of the liter of water within three hours, when no medication was given, whereas when 0.25 cc. of vasopressin were given, the total excretion was only 40 per cent. at the end of seven hours. Without medication, A.R. (Fig. III) excreted the liter of water within three hours, while after a single dose of 0.25 cc. vasopressin, he excreted only 47 per cent. within seven hours. Vasopressin had the most marked effect on D.L. (Fig. IV), who excreted only 31 per cent. of the liter of water in seven hours.

The effect of oxytocin on the excretion of the liter of water was distinctly less, that is to say, W.E. (Fig. I) excreted 65 per cent., J.D. (Fig. II) 64 per cent., and D.L. (Fig. IV) 60 per cent. of the liter of water in seven hours. In A.R. (Fig. III), however, oxytocin had no effect; he excreted a little over the liter of water within seven hours. The slight antidiuretic effect observed may be due to the presence of a trace of the pressor hormone. Assay by the pressor method indicated that the sample of oxytocin used in this work contained about 4 per cent. of pressor activity for each 100 per cent. of oxytocic activity[1].

PATIENTS WITH DIABETES INSIPIDUS

The effect of the two fractions of the posterior lobe of the pituitary was also studied in two patients with diabetes insipidus. As has been previously shown[2], patients with diabetes insipidus may serve as extraordinarily sensitive indicators of the antidiuretic effect of posterior lobe pituitary extracts, as little as .005 cc. of pituitrin "O" hypodermically being sufficient in some cases to diminish conspicuously the urinary output.

*From the Thorndike Memorial Laboratory, Boston City Hospital, and the Department of Medicine, Harvard Medical School.

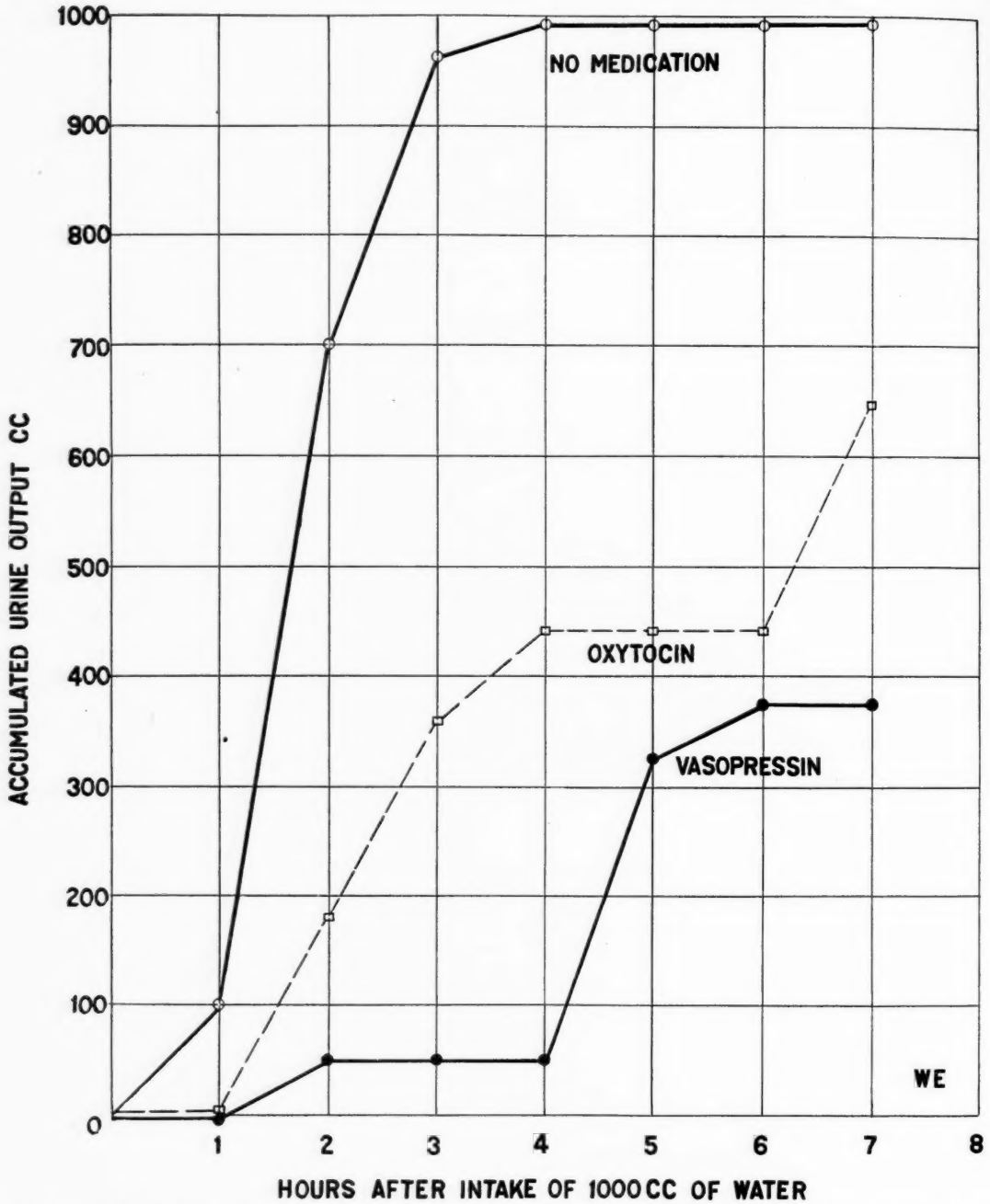

FIG. I. Elimination of a liter of water by subject W. E., when no medication was given, and when vasopressin and oxytocin respectively were given. Liter of water was given at 0. On two subsequent days vasopressin and oxytocin respectively were given at 0, with the liter of water.

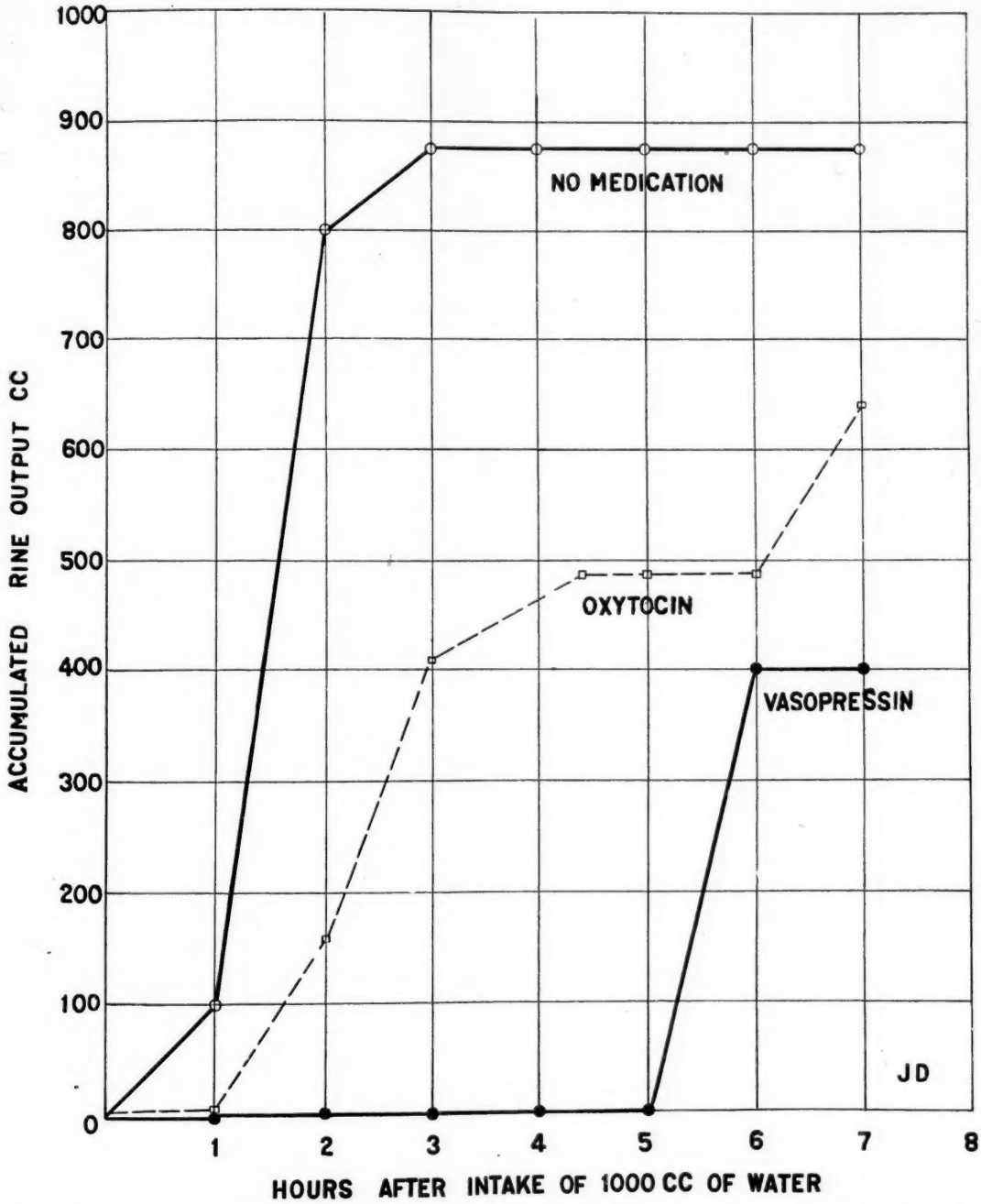

FIG. II. Elimination of a liter of water by subject J. D., when no medication was given, and when vasopressin and oxytocin respectively were given. Liter of water given at 0. On two subsequent days vasopressin and oxytocin respectively were given at 0, with the liter of water.

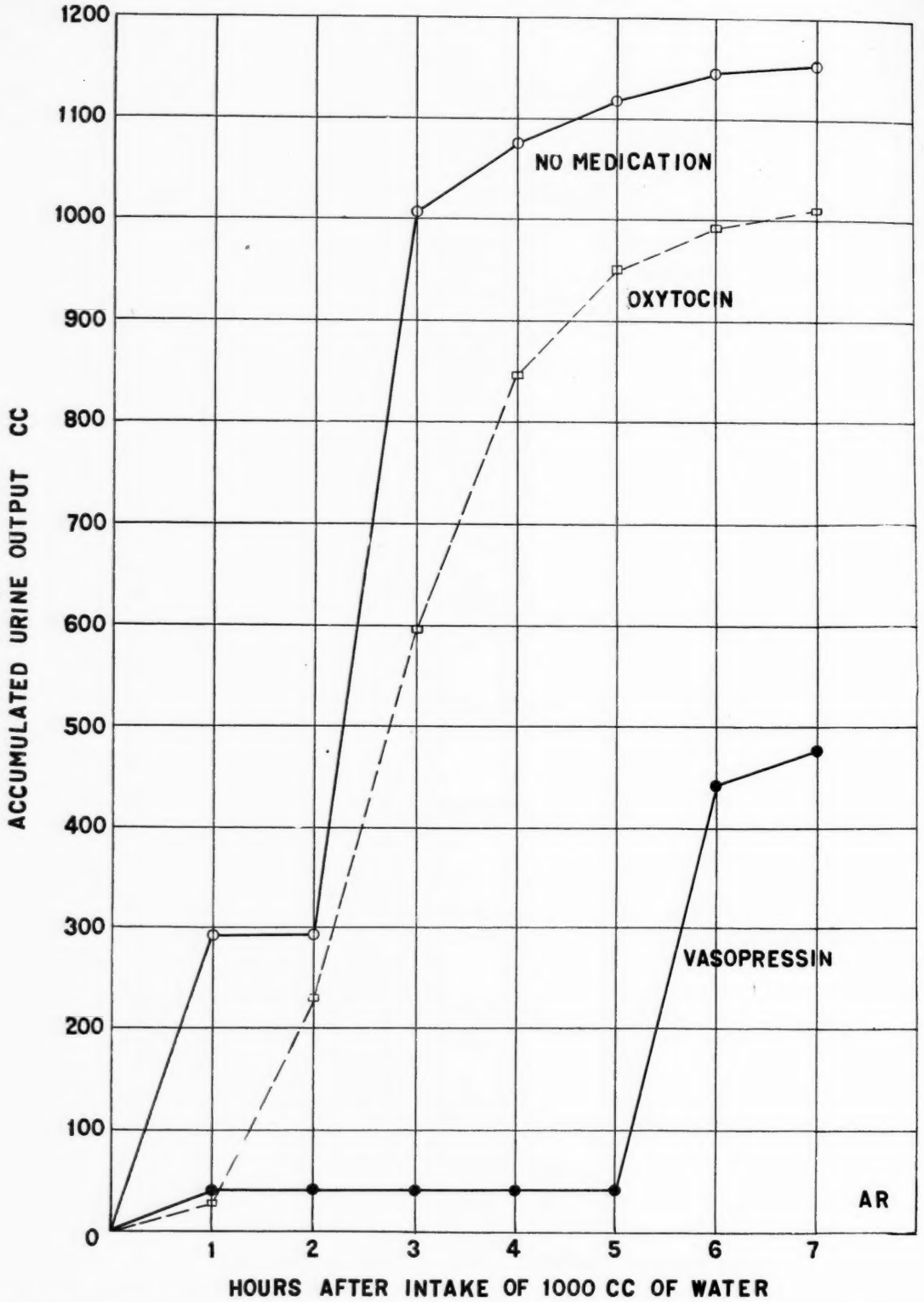

FIG. III. Elimination of a liter of water by subject A. R., when no medication was given, and when vasopressin and oxytocin respectively were given. Liter of water was given at 0. On two subsequent days vasopressin and oxytocin respectively were given at 0, with the liter of water.

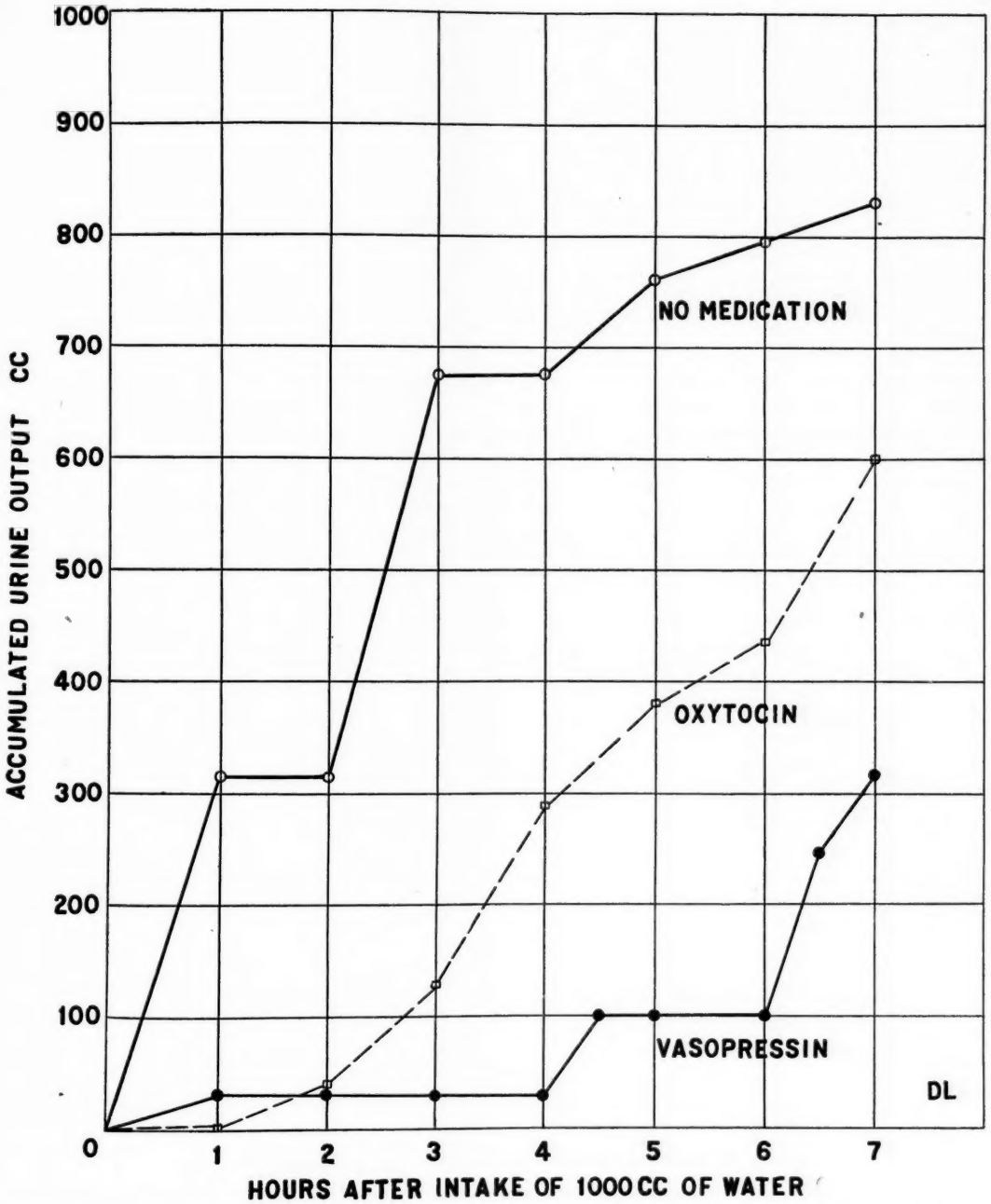

FIG. IV. Elimination of a liter of water by subject D. L., when no medication was given, and when vasopressin and oxytocin respectively were given. Liter of water was given at 0. On two subsequent days vasopressin and oxytocin respectively were given at 0, with the liter of water.

One of the patients (D.C.) was a white married woman, aged 39, whose polyuria and polydipsia began suddenly in 1922 following pseudocyesis. Otherwise she had felt well save for occasional tinnitus and headaches. The physical examination, including x-ray, blood and spinal fluid studies, was negative. The etiology was obscure. Thirst appeared to be definitely primary. Treatment up to the time of admission had consisted of 0.5 cc. of "O" pituitrin, applied intranasally by means of a cotton pledget twice daily. This was sufficient to control the thirst and polyuria.

The second case of diabetes insipidus (H.N.) was a young man, aged 21, whose complaints began about two years before admission, following an attack of influenza. The physical examination, including x-ray, blood and spinal fluid studies, was entirely negative. Diabetes insipidus was possibly post-encephalitic. He had been kept perfectly comfortable with intranasal applications of pituitrin "O" twice a day.

Method: Both patients were placed on constant salt and constant protein diets. The protein and the salt contents of the diets were as low as practicable. To avoid monotony two diets of almost equal protein and salt content were alternated from day to day, and the amounts consumed were recorded. The fluid intake and urinary output were carefully measured and recorded. Urinalysis included quantitative determinations of chloride and nitrogen, according to the methods of Folin[3] [4].

The patients received the standard diet, but no medication, for 24 hours. Then 0.25 cc. of vasopressin (the pressor fraction) were given hypodermically every six hours for 24 hours. Twenty-four hours without medication were allowed to elapse before hypodermic administration of 0.25 cc. of oxytocin (the oxytocic fraction). After 24 hours without medication, the patient received vasopressin intranasally by cotton swab every six hours. For purpose of comparison, one of the patients (H.N.) was given also pituitrin "S" intranasally during another test day.

Effect of Vasopressin and Oxytocin on Thirst and Polyuria. Tables I and II contain the data on urinary output, specific gravity, and sodium chloride and nitrogen concentrations in the urine. The relation of medication is also indicated.

The effect of medication on fluid intake and urinary output is shown graphically in Figures V and VI. The hypodermic administration of 0.25 cc. of vasopressin every six hours for 24

TABLE I.—PATIENT D. C.

Date Dec., 1927	Medication	Urinary Output cc.	Sp. Gr.	NaCl. Con. Urine mgs./100cc.	NaCl. Intake gms. per day	Protein intake gms./day	Nitrogen con. urine mgs./100cc.	Wt. of Pt. lbs.
1	None	4720	1.003	100	1.793	36.17	104	140
2	8 hr. Hypo Vasopressin	550	1.009	109	2.176	47.61	414	140
3	8 hr. Hypo Vasopressin	1755	1.006	52	2.009	43.26	362	140
4	None	4235	1.003	78	1.237	39.13	158	139
5	None	4670	1.003	50	1.845	37.50	136	137
6	8 hr. Hypo Oxytocin	2710	1.002	74	2.027	31.76	150	137½
7	None	3675	1.002	54	1.589	34.96	130	137½
8	6 hr. intranas. Vasopressin	365	1.005	156	1.65	42.68	231	136
9	6 hr. intranas. Vasopressin	1405	1.012	186	1.652	41.76	498	138

TABLE II.—PATIENT H. N.

Date Dec., 1927	Medication	Urinary Output cc.	Sp. Gr.	NaCl. Con. Urine mgs./100cc.	NaCl. Intake gms. per day	Protein intake gms. per day	Nitrogen con. urine mgs./100cc.	Wt. of Pt. lbs.
12	None	8200	1.002	44	2.064	44.77	107	126
13	6 hr. Hypo Vasopressin	3380	1.004	50	2.289	46.84	387	126
14	None	5470	1.004	50	2.289	46.84	167	125
15	6 hr. Hypo Oxytocin	6310	1.003	60	2.496	47.71	155	124
16	None	6500	1.002	60	2.289	46.84	168	124
17	6 hr. intranas. Vasopressin	380	1.020	464	2.496	47.71	1190	124
18	None	6925	1.003	50	2.289	46.84	132	123
19	4 hr. Hypo Vasopressin	2675	1.005	140	2.496	47.71	328	123
20	None	5860	1.003	60	2.289	46.84	204	122
21	6 hr. intranas. Pituitrin "S"	385	1.021	350	2.496	47.71	1080	123

hours produced almost immediate alleviation of thirst and a distinct diminution of the polyuria. When given intranasally by means of pledgets of cotton, which were allowed to remain in the nose for six hours, vasopressin produced a more conspicuous and more prolonged effect. Thirst was controlled more effectively by vasopressin intranasally than by intranasal application of pituitrin "S" in patient H.N.; on the day vasopressin was given intranasally the fluid intake was 700 cc. and the urinary output 380 cc., while on the day pituitrin "S" was given, the intake was 1550 cc. and the output 385 cc. (see Fig. VI).

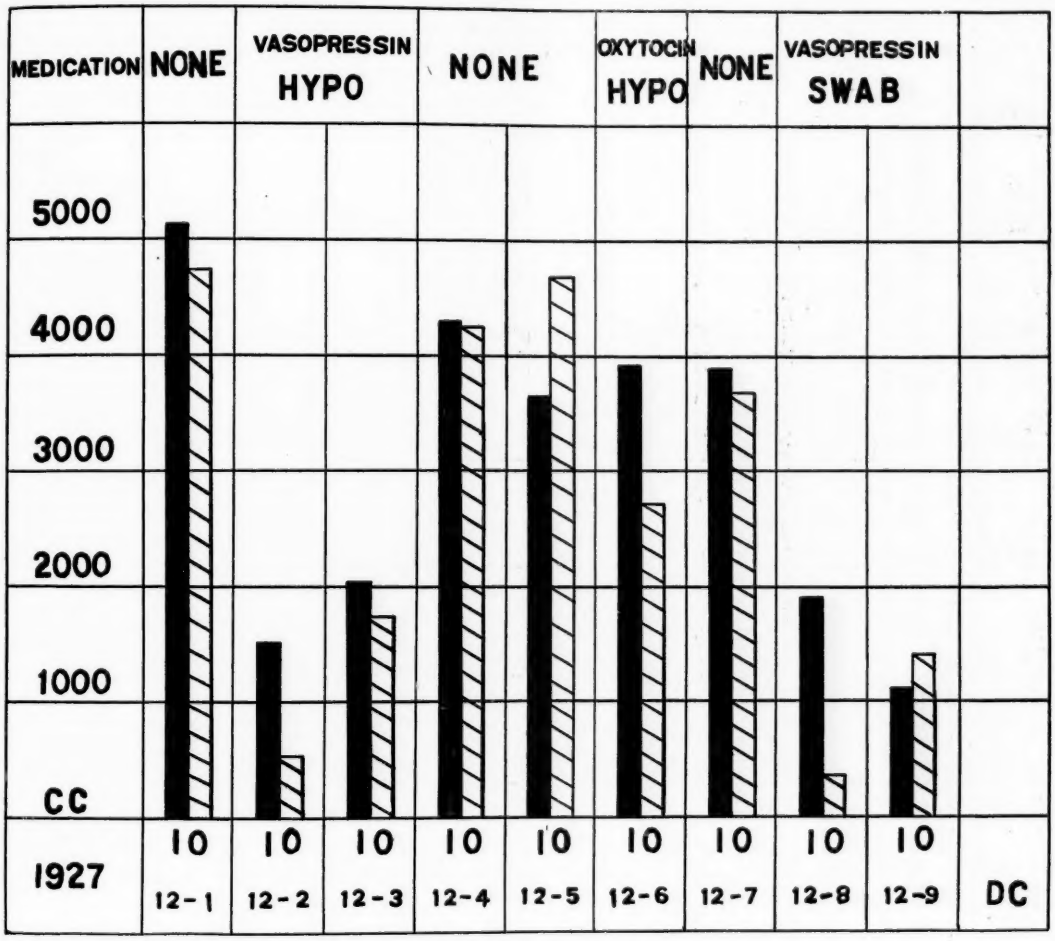

FIG. V. D. C.: Solid column, I, represents 24 hr. fluid intake. Shaded column, O, represents 24 hr. urinary output. On 12/2 and 12/3, 0.25 cc. vasopressin given intramuscularly every 6 hours. On 12/6 0.25 cc. of oxytocin given intramuscularly every 6 hrs. On 12/8 and 12/9, 0.25 cc. vasopressin given intranasally by cotton pledget every 6 hours.

The administration of vasopressin, even in doses of 0.25 cc., was attended occasionally by rather marked blanching of the face, which lasted for from three to five minutes, and by a subjective feeling of warmth spreading through the body. The effect upon arterial pressure was variable. In one case (D.C.) the systolic pressure rose 15 millimeters of mercury 20 minutes after hypodermic injection of vasopressin. This rise was maintained for 15 minutes. In the other case there was no effect on arterial pressure.

There were no untoward effects from doses of 0.25 cc., or less; but the administration of 0.5 cc. of vasopressin to one of the patients (D.C.) was followed five minutes later by severe lower abdominal cramps, nausea, vomiting and diarrhoea.

As indicated by Figs V and VI, oxytocin had practically no demonstrable effect on the fluid intake or urinary output. The patients experienced no subjective effects. Blanching of the skin and changes in arterial pressure were not noted.

Effects of Vasopressin and Oxytocin on Concentration of Chlorides and Nitrogen in the Urine. Vasopressin usually caused an increased concentration of both chlorides and nitrogen. Oxytocin had hardly any effect on concentration of the urine.

SUMMARY

1. In four normal men single doses of vasopressin checked the excretion of a liter of water

for five or six hours, while oxytocin had but slight effect.

2. In two patients with diabetes insipidus vasopressin effectively controlled the thirst and polyuria, while oxytocin proved ineffective.

3. Intranasal administration of vasopressin by cotton pledget proved more effective than subcutaneous administration in the two patients with diabetes insipidus.

4. On the basis of these findings the antidiuretic effect of extracts of the posterior lobe of the pituitary gland seems to be inherent in the pressor principle.

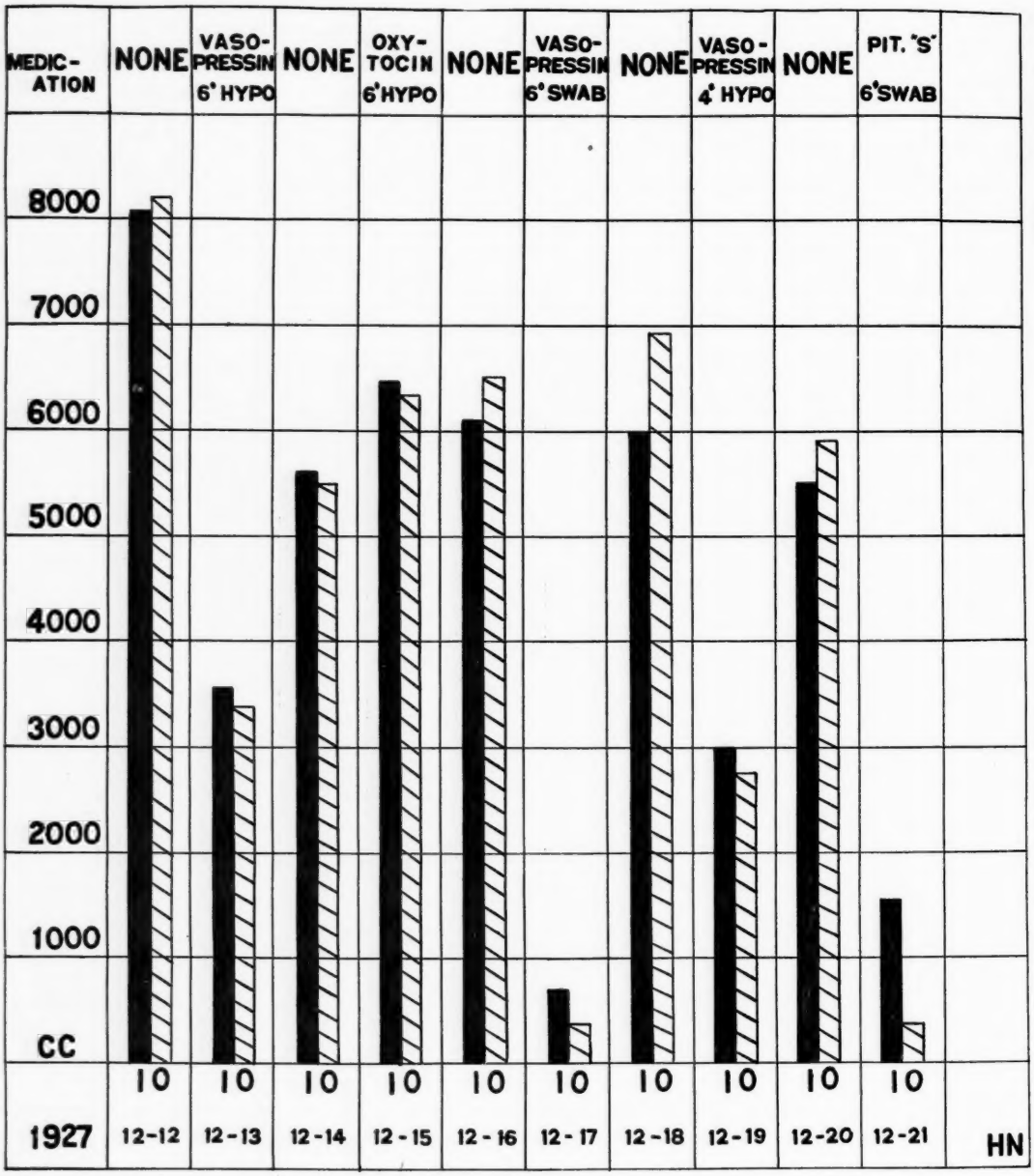

FIG. VI. H. N.: Solid column, I, represents fluid intake for 24 hours; shaded column, O, represents urinary output for 24 hours. On 12/13, 0.25 cc. vasopressin given every 6 hours intramuscularly; on 12/15, 0.25 cc. oxytocin given every 6 hours intramuscularly; on 12/17, 0.25 cc. vasopressin given every 6 hours intranasally by cotton pledget; on 12/19, 0.25 cc. vasopressin given every 4 hours intramuscularly; on 12/21, 0.5 cc. pituitrin "S" given every 6 hours by intranasal cotton pledget.

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THE VALUE OF THE ELECTROCARDIOGRAM IN ACUTE RHEUMATIC FEVER*

BY WILLIAM D. REID, M.D., AND FLORENCE L. KENWAY, M.S.

PHYSICIANS have long sought for the earliest evidence of involvement of the heart in cases of acute rheumatic fever. In some patients the clinical signs are sufficiently severe to be obvious, but in the majority of cases they are slight or absent. In recent years increased attention has been paid to the condition of the myocardium, and a number of workers have resorted to electrocardiographic examination for the detection of derangements of the heart muscle.

For the purpose of personally determining the value of the use of the electrocardiograph in acute rheumatic fever, we have taken repeated electrocardiograms on a series of patients ill with acute rheumatic fever in the wards of the Boston City Hospital.

ELECTROCARDIOGRAMS

A total of 281 curves were taken on 26 rheumatic fever patients. In accordance with the suggestion of Cohn and Swift[1], we examined our electrocardiograms with reference to the three types of changes which these investigators found in records taken on patients with rheumatic fever. These changes are:

(1) Increase in the auriculo-ventricular conduction time.
(2) Alteration in the ventricular complex.
(3) Various irregularities in cardiac rhythm.

Following this suggestion, we examined our electrocardiograms with reference to these changes. In taking the tracings, the string was of course standardized and the patient's resistance was in each case within normal limits, so it is fair to state that the minute changes found were not due to mechanical error.

(1) Out of the 26 cases studied, prolongation of the P-R interval beyond 0.21 second was found in eleven cases one or more times (42.6%), with a total of 60 times in 281 curves. One case showed a conduction time varying from 0.21 to 0.40 second in nineteen consecutive electrocardiograms. In the other cases, the change was more transient.

Cohn and Swift[1] suggest that there is a normal conduction time for each individual, and that any change of 0.02 second or more is significant. Of the fifteen cases who did not show partial block with a conduction time greater than 0.21 second, thirteen showed variations of from 0.02 to 0.08 second in different curves. This gives a total of 92.5% who showed prolongation of the auriculo-ventricular conduction time beyond the normal for the individual. Dropped ventricular beats were found in two cases (5 curves). Only four of all twenty-four patients (excluding two auricular fibrillation cases) failed to show variation in the P-R interval greater than 0.02 second. These variations varied from 0.03 to 0.28 second. The two remaining cases showed auricular fibrillation throughout with the exception of one record of flutter, and therefore the P-R interval could not be measured.

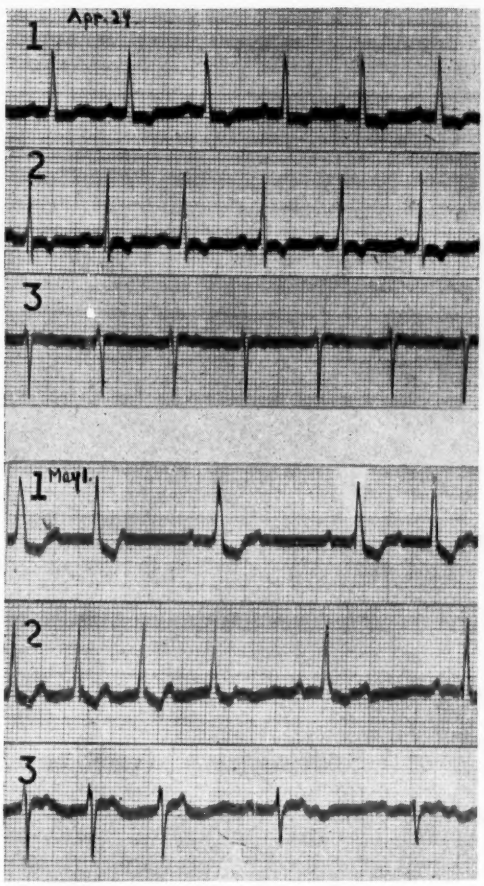

FIG. 1. Male 20 years. Above, April 24, Normal rhythm, P-R=0.18-0.20 second. Below, May 1, Partial heart-block, P-R=0.24-0.32 sec. with frequent dropped beats. Note the change in the S-T portion of the string shadow in the second record.

(2) Under normal conditions, electrocardiograms maintain a fairly constant form for a given individual over long periods of time. Any marked variation from the usual contour of the curve is probably caused by alteration in the heart.

Of the twenty-six cases, twenty-one exhibited such deviation. The changes included such variations as the presence of an S wave in one

*From the Evans Memorial.

curve and its absence in the same individual another day; similar variations though not so marked in regard to the Q wave; variations in the relative amplitude of the Q-R-S waves; decided variations in the form of the R wave; variations in the size, extent, and direction of the T wave; and changes in the direction of the S-T portion of the string shadow. Changes in the S-T interval were found in eleven cases. This alteration amounted to an absence of an isoelectric period between the end of the Q-R-S complex and the beginning of the T wave.

(3) In regard to irregularities in cardiac rhythm, the third indication of heart involvement in rheumatic fever patients, two of our cases showed auricular fibrillation with a single record of flutter in one of these, as stated above. Sino-auricular tachycardia with varying rates of 100 to 125 was found one or more times with eleven patients, sixteen curves of this rhythm being obtained from one patient. Nine patients gave evidence of premature contractions, three of ventricular origin, three auricular, and three probably nodal.

Auricular hypertrophy was found in four patients, and left axis deviation in varying degrees in six patients. The hypertrophy in these cases was probably chronic and not due to the present attack of rheumatic fever. Sinus arrhythmia was frequent.

Disregarding sinus arrhythmia, all of the twenty-six patients showed one or more of the electrocardiographic signs of cardiac involvement. At the time of discharge from the hospital, the changes had disappeared completely in fifteen cases, in eight a slight amount persisted, and in the remaining three, the new findings were still definitely present.

The accompanying electrocardiograms have been selected as illustrating the changes described.

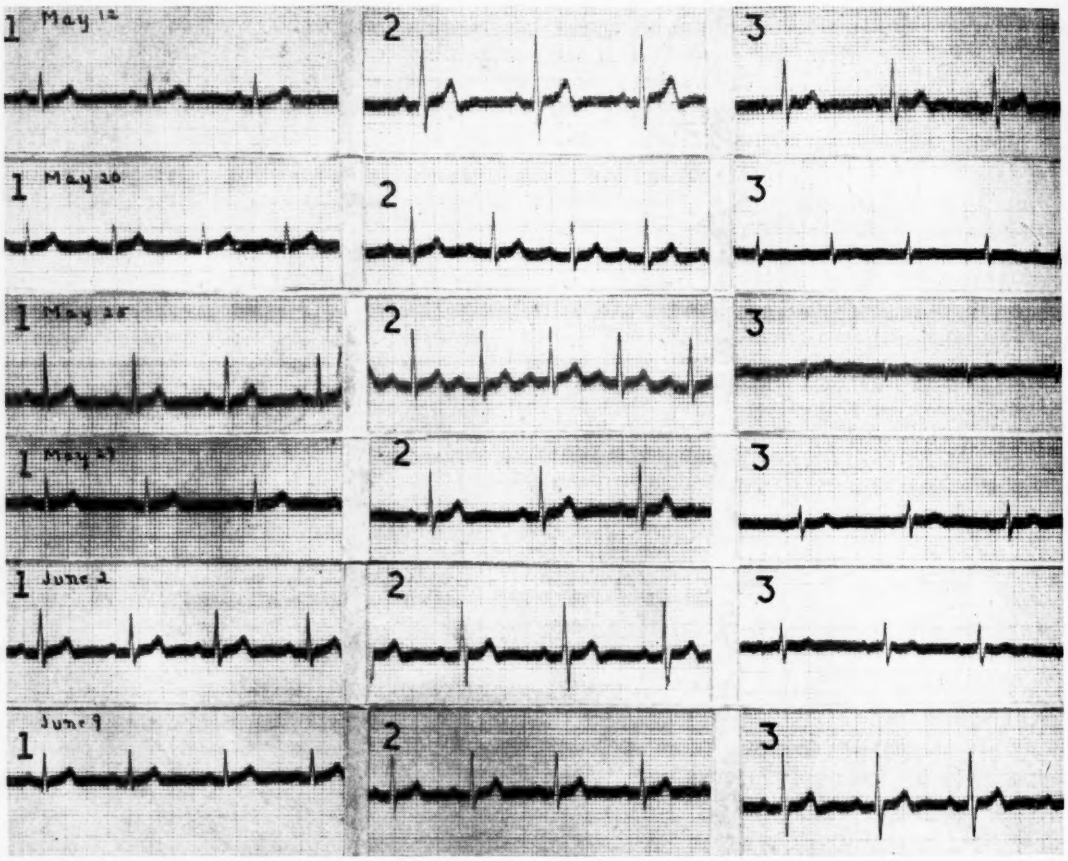

FIG. 2. Female 18 years. Six records showing variation in Q-R-S-T. P-R interval varies from 0.16 to 0.24 second.

CORRELATION WITH CLINICAL FINDINGS

The symptoms noted were those of rheumatic fever rather than of heart disease. The pain from the arthritis usually subsided in a few days under salicylate therapy, but the changes in the electrocardiogram were present and often progressed for from one to several weeks. This is in agreement with the conception of Swift[2] that the arthritic changes are of the nature of exudative phenomena, whereas those in the heart are proliferative in character. The exudative phenomena usually disappear as a result of the salicylate medication, and the patient may appear to be clinically well although the proliferative features continue and may progress. We found no relation between the duration of the joint symptoms and the degree of, or persistence of, the electrocardiographic changes.

There was no close connection between the findings on clinical examination of the heart and those in the electrocardiogram. In eleven cases the heart appeared normal throughout; in six others with the findings of chronic heart disease, nothing indicative of fresh involvement of the heart could be detected on physical examination; four cases showed slight signs such as abnormal tachycardia; in one patient partial heart-block was detected by electrocardiogram before the development of a murmur considered due to rheumatic endocarditis; in one, acute mitral endocarditis appeared; in one, acute pericarditis of moderate degree was present; and in the remaining two, one of which progressed to

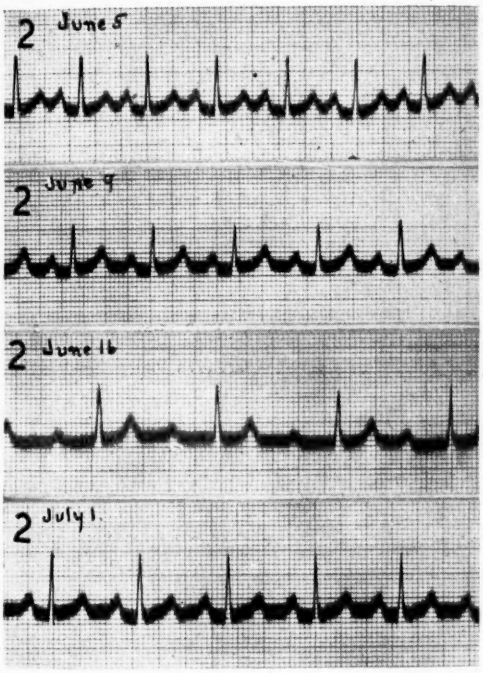

FIG. 3. Female 28 years. Four records, lead 2, showing variation in the P-R interval with prolongation from 0.20 second to 0.40 second.

death of the patient, there was extensive cardiac damage from pericarditis and valvular lesions. As might be expected, the presence of partial heart-block was not detected on physical examination of these eleven cases save in the two in which it progressed to the dropping of ventricular beats. Then only did the irregularity in the rhythm disclose the presence of the conduction defect.

One notes such items in the records as: "The electrocardiographic changes and joint signs were present three weeks before the appearance of a murmur;" "Nothing new in the heart but the electrocardiogram has shown abnormalities;" "There has been no reason to suspect involvement of the heart save from the electrocardiographic changes."

The ages of the twenty-six patients ranged from 12 to 55 years; the sexes were about equally divided. Neither age nor sex appeared to have any definite relationship to the presence of electrocardiographic or physical heart findings.

In this series of cases, seventeen were affected by their first attack of rheumatic fever, five by their second, one by the fourth, and one by the fifth. In the remaining two, according to the history, this was the first recognized attack of rheumatic fever although the heart showed evidence of organic change of a chronic sort. All but one of the patients in whom the present attack was not the initial one showed signs of structural changes in the heart. The number of the attack made no essential difference in the presence of the alterations in the electrocardiogram save for the two with persistent fibrillation of the auricles which made it impossible to determine the conduction time (the P-R interval). The duration of the arthritis before admission to the hospital likewise had no bearing on the degree of change detected in the electrocardiograms.

COMPARISON WITH REPORTS BY OTHER OBSERVERS

As far as is possible, in view of the difference in method of reporting, the findings noted by various observers have been combined in Table I.

It will be noted that the frequency of the findings detected is higher in the reports showing the greater number of electrocardiograms. There appears to be greater value in taking repeated tracings.

SUMMARY AND CONCLUSIONS

Two hundred and eighty-one electrocardiograms were taken on a series of twenty-six patients ill with acute rheumatic fever.

These records were examined for the presence of alteration indicative of involvement of the myocardium. One or more of three such changes were detected in all.

These changes are:

1. Increase in the auriculo-ventricular conduction time.
2. Alteration in the ventricular complex.
3. Changes in the cardiac rhythm.

Repeated electrocardiograms on the same patient are necessary to detect these changes which are often transient.

An increase in the auriculo-ventricular conduction time was found in 92 per cent. of the cases; in 42 per cent. it was of the degree found in partial heart-block.

Change in the form of the ventricular complex was detected in 80 per cent.

Extrasystoles were found in 34 per cent.

Comparison with the reports from other laboratories shows similar findings, the higher percentages of changes being detected by those taking the greater number of electrocardiograms on each patient.

The electrocardiographic evidence of myocardial involvement is present although the patient

	Total cases	Total Electro-cardio-grams.	P-R in excess of 0.21 sec. %	P-R Increased more than 0.02 sec. %	Changes in Ventricular Complex. %	Change in S-T %	Some change. %	Persistence.	Extra-systoles. %	Dropped beats. %	Remarks.
Cohn & Swift[1]	37	2,591	21.6	84	46	Many	94.5	Often transient.	62.1	21.6	
Swift[2]	81		13.3	86.5	92.6		90+	Often transient.			Absent or doubtful valvular dis.
Rothschild,[3] Sacks & Libman	65				80		94	Usually transient		7.2	Heart affected in 61 out of 65 cases.
Parkinson,[4] Gosse & Gunson.	50	100	30					Often transient.	20.	8.0	Sino-Aur. tachy. 94%
Bain & Hamilton.[5]	50		4		12	6%	22		2.0	0	
Boas & Schwartz.[6]	13	50	15.4				23.5		7.7	0	
Coombs.[7]	79				67				Small %		
Reid & Kenway.	26	281	42.6	92.3	80.7	42.4	100	Transient in 15 cases, 57-%	34.6	7.7	Not evident on examination of heart in 17 cases
Average.			21.15	87.6	63.6		70.66		25.28	7.4	

TABLE I

Vacant spaces indicate data not recorded.

may have become symptomatically free and nothing abnormal may be found on physical examination of the heart.

The high incidence of the electrocardiographic signs adds important confirmation to the opinion of many authorities that the heart is involved, though not necessarily to a degree that presents clinical signs, in all cases of acute rheumatic fever.

The detection of these electrocardiographic changes is often the first and sole evidence of cardiac involvement. Their presence may be of value in the differential diagnosis between rheumatic heart disease and the acute or subacute bacterial type[3], or between rheumatic arthritis and that of other causation.

The finding of evidence of myocardial involvement in electrocardiograms taken in acute rheumatic fever is of clinical importance if the changes are marked or persistent. Their detection gives reason for continuing to treat the patient, even though he may appear clinically to have recovered.

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CARBOHYDRATE INDIGESTION: ITS DIAGNOSIS AND TREATMENT

BY EDWARD S. EMERY, JR., M.D.

THE inability of the body, at times, to digest or tolerate starches has received considerable attention from the medical profession. This intolerance is frequently met with in children[1], and that it can disturb the whole body is recognized by pediatrists. Despite the interest shown in the question of its occurrence in adults, the condition does not seem to have been carefully studied, and there are many current misconceptions as to the symptoms it produces and as to its diagnosis. This seems to be due in no small measure to the lack of attention paid by the physicians of this country to the very excellent studies which Schmidt and Strassburger made on the subject, a number of years ago[2]. Articles in the American literature are rare, though there was a very excellent, brief report by Jankelson in 1922[3]. The condition which Schmidt and Strassburger described is distinct, having characteristic symptoms and signs, which distinguish it from the general run of intestinal disturbances. Its lack of recognition is unfortunate, as patients suffering from this condition are very uncomfortable and respond quickly and completely to treatment.

The symptoms are various but for the greater part attributable to the colon. They usually are referred to the lower half of the abdomen, although occasionally there may be an associated epigastric discomfort, due possibly to some reflex effect upon the stomach.

The history is so characteristic as frequently to be diagnostic in itself. The patient first notices discomfort in the lower part of the abdomen, a feeling of distention, which may become quite marked. The abdomen becomes very tense and may even bulge perceptibly. Churning sensations are experienced, which, together with rumbling and gurgling noises, vividly impress the patient with the fact that a large amount of gas is being driven about through the intestines in a tumultuous fashion. A burning distress is not uncommonly experienced in the pit of the stomach or lower down. These symptoms increase in severity until there is an urgent desire for defecation. The resulting movement is "explosive" in quality—a term frequently used by the patient. Temporary relief occurs, to be followed by the return of symptoms, and in the next twelve or fourteen hours there are three or four more similar bowel movements. All discomfort then disappears, and the patient is constipated for a few days, this costiveness being succeeded by a gradual return of the stools to normal. In a short time this cycle of events is repeated. The following case is typical.

CASE 1. S. A. O. D. D. No. 106711. A 33-year-old laborer complained of attacks of pain coming on in the left lower quadrant over a period of seven months. There were burning distress and considerable rumbling and gurgling. Relief followed the passage of a loose mushy stool, explosive in type. He had failed to obtain relief by the usual methods of treatment, and the story was otherwise negative. Physical examination was essentially negative. Stool specimens were acid, contained much indigested starch and fermented actively. He was given a starch-free diet and within three weeks the symptoms had entirely disappeared.

Such a cycle of clear-cut symptoms strongly suggested the diagnosis. The symptoms, however, are not always so sharply defined and the history may be misleading, occasionally suggesting the distress of a peptic ulcer.

CASE 2. L. G. (Private.) A 42-year-old man, when seen for the first time, gave a story of a burning epigastric pain which radiated to the sternum. It came on one-half to one hour after meals and lasted for thirty minutes. It was said to be relieved with

food and soda. Physical examination was negative. Although the original story suggested an ulcer, more careful investigation of the symptoms showed it to be somewhat atypical. An X-ray examination of the stomach was negative. Three stools specimens were acid and contained an excessive amount of starch. With a starch-free diet the symptoms disappeared completely and have not recurred for two years.

Another example of this kind is that of CASE 3, P. J. S., O. D. D. No. 98626, a man of 47 who for six years had been troubled with gas coming on three to four hours after eating and severe enough to waken him at two and three in the morning. He obtained only partial relief with food and soda. He was first seen by the House Officer, who made a diagnosis of peptic ulcer. After an X-ray examination of the stomach was reported as negative, the diagnosis was changed to that of gastric neurosis. As the usual dietary and therapeutic measures failed to relieve him, he was sent to me. On October 8th, he brought in a typical fermenting stool and he was put on a starch-free diet. On October 17th, he was feeling better, but had begun to be constipated, although previously he had been troubled with frequent irritating movements. By November 14th, he was entirely free from symptoms. In answer to a follow-up note, he reported, four years later, that he was permanently relieved of his gastro-intestinal symptoms.

The burning distress complained of by the last two patients has been met with in several individuals, who were later shown to have carbohydrate fermentation. Patients having this symptom are likely to complain of an intense burning sensation, recurring time and again in the same place. Another symptom suggestive of a fermentative condition is gaseous distension. Distension may be noted in all gastro-intestinal disturbances, and the complaint of gas is frequent. But on careful questioning one is often able to distinguish between epigastric bloating, causing a desire to belch, and lower abdominal distension with eructation.

CASE 4. Patient E. P., (Private), a 32-year-old male, was first seen by the House Officer, who obtained the following history: For ten months the patient had had pain in the epigastrium and the back, usually one hour after breakfast or dinner. He had not received relief from alkaline powders. He was bothered with much gas, his abdomen would swell at times and his bowels were constipated. Enemata relieved the pain. A diagnosis of gastric neurosis was made the patient was put on a bland diet but, as he did not improve, I was asked to see him. Questioning brought out the fact that the "swelling" of the abdomen occurred in the lower half and was accompanied by borborygmus to a marked degree. A bowel movement at these times gave immediate and complete relief. A stool showed a typical fermentative condition.

The true nature of this case had been missed because those who had previously seen the man had not bothered to investigate thoroughly the story of "gas" and "distention", or because they did not realize its possible importance.

STOOLS

A markedly fermenting stool is usually of a deep tan to a yellow color. It is mushy in consistence, and although not holding its shape, is quite tenacious and appears sticky. Stirring is likely to cause a crackling sound, whether due to its mucous content or the escape of gas bubbles is not clear. The presence of gas is always evident and the little bubbles make it appear like rising dough. The odor is often likened to that of rancid butter, and is thought to be due to the presence of organic acids, chiefly butyric. The reaction is strongly acid to litmus.

Microscopically the stool may not appear abnormal except for its starch content, as brought out by the addition of iodine (Lugol's solution). A normal stool, strictly speaking, should show no starch. The fermenting stool shows a definite starch content. Most frequently the potato cells stain deeply blue because of the starch still in them. In addition there are isolated bits of starch scattered throughout the stool. Various kinds of granuliferous bodies are visible, most frequently those known as clostridia, which resemble yeast cells in form, also threads of a leptothrix character. These organisms take a blue stain with iodine.

It is important to test the stools for acidity after incubation, for gas formation may be due to putrefaction of proteins. In the latter case the stool becomes alkaline. It is also important to incubate the stool when freshly passed, for, as Schmidt has shown, the fermentation of starches occurs early, to be superseded by putrefaction of the protein contents. If a stool is allowed to stand too long, it is possible for this change to take place before it is tested and the diagnostic value of the test will be lost.

The above applies to stools with marked fermentation. All cases do not have such positive findings, and one or more of the findings may be absent in a particular case. The stool may be firmer in consistency, of a more natural color, and the acid odor may not be so easily noticed, but the reaction is acid, and the starch is present. With a formed stool and only a slight amount of acid and a moderate amount of starch, it is not always easy to decide whether one is dealing with a true fermentative condition or not. In these cases it can be solved only by a therapeutic test, a trial-and-error form of treatment. This I will discuss later. Whenever a stool is suspected of fermenting it should be tested in a fermenting tube as described by Schmidt and Strassburger.

It has been my experience that the presence of granuliferous organisms is the safest finding on which to make a diagnosis. If present, they are practically diagnostic; if absent, however, they do not rule out fermentation. In the latter event, one has to weigh the other signs and in some cases to use a trial-and-error method of diagnosis.

ETIOLOGY

The symptoms seem without doubt to be due to fermentation of starches in the colon, causing an abnormal production of gas and an acid stool. Schmidt believed it was due to a catarrh of the small intestine, resulting in a deficient absorp-

tion of the starches, which, reaching the colon, ferment, and cause the symptoms. Yet this explanation does not seem to account for all the findings. There is some reason to feel that the condition may be due to the implantation of an abnormal flora, resulting in the production of foreign products, causing the symptoms of irritation. There is no evidence, so far as I know, on which to decide the underlying etiology.

DIAGNOSIS

The diagnosis of carbohydrate indigestion is easy in the presence of typical symptoms and fecal examination. If the symptoms are not clear-cut, but the stools show granuliferous organisms, increased starch content, acid reaction and fermentation, one should not hesitate to make the diagnosis. When the symptoms are atypical and the stool findings are incomplete, the diagnosis may be difficult or impossible. In diarrhoea from enteritis the stool may contain an excess of starch and may ferment when incubated. In differentiating carbohydrate indigestion from an enteritis, in which starch is swept into the colon because of an inflammatory process in the small intestine, one is sometimes forced to resort to a trial-and-error method of diagnosis. If the symptoms are not relieved by treatment, one must conclude that a true fermenting condition does not exist.

Finally, one sees patients complaining of symptoms colonic in type, such as have been described elsewhere under the terms "irritable colon"[5] but in which the stools are formed, thus giving no evidence of the existence of an irritable condition. In a certain number of cases the stools will be found to be consistently acid. It would seem that these cases should be classed under the fermentative group, for the removal of starch from the diet results in a return to a normal reaction in the stools and a coincident disappearance of the symptoms. Whenever one obtains the symptoms of an irritable colon with normally formed stools the possibility of acid stools should be considered and investigated.

TREATMENT

The treatment is simple and consists in the removal of all starch from the diet. Ordinarily the diet of protein and fat need be continued only for ten days, at which time a few slices of well toasted bread may be added. If this is well borne, after three or four days the patient may be given a little cereal. Occasionally the symptoms may vary, and it is necessary to return to a starch-free diet for another ten days. Usually, however, the starches can be increased fairly rapidly until a normal diet is being taken.

After enough starch has been added to make the diet more palatable, it is safer to add the 3%-10% vegetables before allowing a larger amount of the pure carbohydrates. Potatoes should be permitted last of all, as for some reason these are likely to produce a relapse and I have seen this happen even after considerable starch has been taken for some weeks.

Under the treatment, symptoms subside rapidly and often most strikingly. Patients who have been very uncomfortable, passing three to six stools a day, may, within forty-eight hours after the diet has been started, get marked relief. They may even become constipated, making it necessary to give large amounts of vegetables and fruits. Because of the quick response, these are among the most gratifying types of patients to treat.

Jankelson[6] states that if the condition is allowed to persist too long, a state of chronic colitis will result. This will mean the treatment of a colitis after the fermentative condition has been alleviated. Personally, I have had no experience with this type of case and consequently am unable to discuss it.

It is striking, however, to see how completely relief can be obtained with apparently permanent results. This is true even in cases of long standing, such as case 3, reported here. Once the condition has been completely relieved, I have known of no instance of a relapse.

SUMMARY AND CONCLUSIONS

A failure in digestion of the carbohydrates produces quite characteristic symptoms, when the condition is marked. These consist of alternating constipation and diarrhoea, associated with a great deal of distention and gurgling in the lower abdomen. When the symptoms are severe, the stools are quite striking, the essential points in their examination being the increased amount of starch, the presence of iodine-staining organisms and the tendency of the stools to ferment. Where the process is not so active, the diagnosis may be more difficult and occasionally must depend on a trial-and-error method of treatment. The differential diagnosis between a carbohydrate indigestion and a mild enteritis has been herein discussed.

The treatment consists in the complete removal of carbohydrates for a period of days, which results in complete relief of the symptoms and no tendency to relapse.

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GONOCOCCUS SEPTICEMIA RECOVERY WITHOUT A CARDIAC COMPLICATION. REPORT OF A CASE

BY THOMAS J. O'BRIEN, M.D., AND EVERT A. BANCKER, JR., M.D.

THE presence of the gonococcus in the blood stream is an unusual condition almost always resulting fatally. W. S. Thayer and his collaborators have studied the subject thoroughly, especially reviewing the cardiac complications as shown at autopsy. Some thirty odd cases were found in histories of post-mortems done at the Johns Hopkins Hospital, and about the same number of cases were found in medical literature. All of these fatal cases had ulcerative or vegetative endocarditis associated with gonorrheal infection.

We find no report of a case wherein a patient with a gonorrheal septicemia recovered, without presenting evidence of a cardiac lesion.

Thayer mentions a few cases reported as having recovered from gonorrheal septicemia but all of these had resultant cardiac lesions, as follows: The case of Silverstrini, being that of a man 29 years old, who acquired gonorrhea one month before entry. He was treated by injection of wine. The gonococcus was cultivated from the blood stream and from urethral discharge. The patient recovered, and nine months later showed evidence of chronic mitral disease with systolic and presystolic murmur.

The case of Withington was that of a man 26 years old who acquired gonorrhea, and two weeks later, measles. A blood culture was positive for the gonococcus. This patient recovered in three weeks but had a systolic murmur persisting at the second left interspace although the heart was normal in size.

Dieulafay's case was that of a man of 23, with a positive blood culture. A mitral systolic murmur appeared. Later broncho-pneumonia complicated the case, but after rest and treatment by gonorrheal vaccine, the patient recovered; evidence, however, of the mitral lesion remained.

Marfan et Debié reported a case of a girl ten and a half years old admitted for pelvic peritonitis, but with a blood culture positive for the gonococcus. The heart was enlarged and a rough systolic murmur appeared at the apex and was transmitted to the axilla. Five days later a pericardial friction sound was heard. She was treated by gonococcus vaccine and by anti-meningococcus serum, and recovered in three weeks, although persistent signs of mitral insufficiency and adherent pericardium remained.

Tapie and Riser reported a case with recovery, but did not mention the cardiac condition, so we are at a loss to properly classify it. A gram negative diplococcus was isolated from the blood and at first these observers thought that this was the meningococcus intracellularis of Weischelbaum, which closely resembles and must be differentiated from the gonococcus.

Gourvich did much work on the subject of endocarditis found in gonorrhea cases, and emphasized the frequency with which systolic murmurs were heard at the apex of the heart during the height of the disease, but disappeared with the recovery of the patient from the local infection. Such a systolic murmur was heard in our case, and this souffle disappeared as the patient improved, leaving no evidence of an organic or even a functional condition during convalescence.

As the treatment of a urethritis is usually an office or out-patient procedure, and the cardiac condition is not studied before, during, or after the treatment, we have no evidence of the frequency of heart complications in these cases. Blood cultures are seldom taken unless the patient is confined to bed and there are clinical symptoms of septicemia. We now know that gonorrheal infections are not necessarily local, spreading by direct extension only, but that the blood stream may be invaded and a general septicemia follow. The variations in virulence of the many strains of the gonococci may explain why there is such a difference in the complications of this disease from arthritis to the several kinds of cardiac inflammations. We feel that all such complications are evidences of a general septicemia, of varying intensities, even if the blood culture fails to reveal the presence of the gonococcus.

*Methods:** The organism was first isolated from a routine blood culture of 10 cc. of blood in 100 cc. of beef infusion broth. After 48 hours of incubation some hemolysis was apparent macroscopically. A smear stained by Gram's method showed many Gram negative diplococci in the polymorphonuclear cells of the blood. Transplants were made to various solid media but growth was obtained only on human blood agar and on 15% hydrocele agar. No growth was apparent until 48 hours of incubation.

Morphology: The colonies on solid media were round, smooth, raised and quite translucent. Smears showed Gram negative, biscuit-shaped diplococci which varied considerably in size.

Fermentation: The organism would not grow well on liquid media, so 15% hydrocele agar was made up, containing 1% of the various sugars and Andrade's indicator. Glucose was constantly fermented and maltose never.

Agglutination: A suspension of the organisms

*We are greatly indebted to the pathological department of the Boston City Hospital for the details of the method used in the detection of the gonococcus in the blood stream.

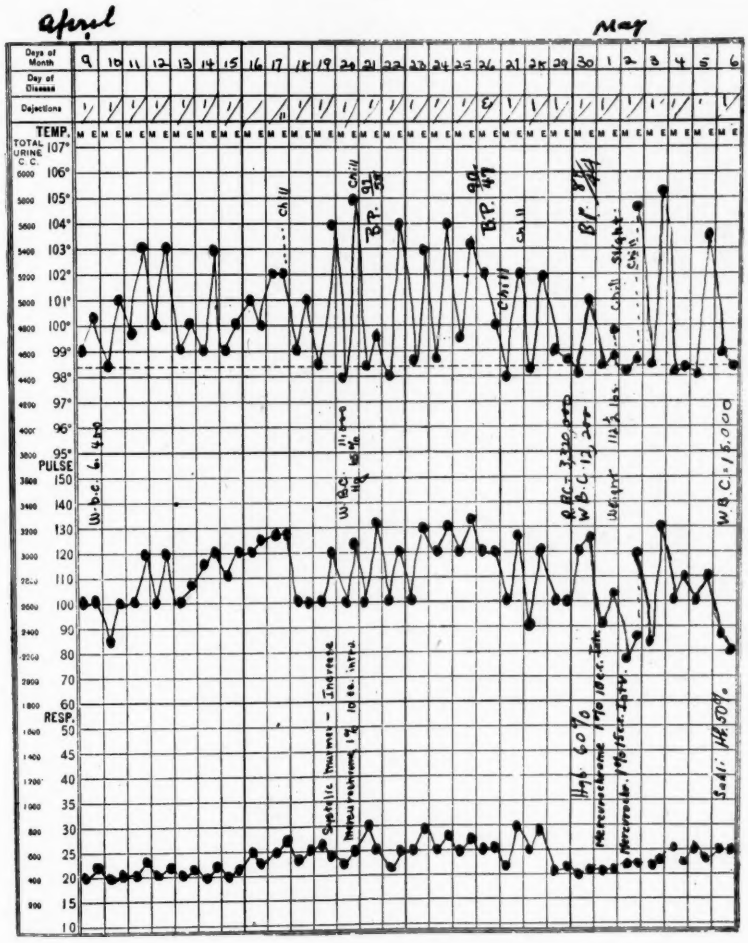
from a 24 hour growth on a hydrocele agar slant was made in salt solution. It was then heated to 56° for an hour. Equal volumes of suspension and of immune serum dilutions were made and placed at a temperature of 56° for 18 hours. Agglutination took place up to dilutions of 1:100. Control showed no agglutination.

Precipitins: A watery extract of the organism gave a preciptin ring up to dilutions of 1:400 with anti-gonococcus serum. Horse serum controls showed no ring.

As human blood is known to be an unsuitable medium for the growth and multiplication of the gonococcus; this may explain, to some extent, the rarity of a positive blood culture in suspected cases. Old valvular scars and deformities predispose to infection of the heart in any case of septicemia, and should be considered in arriving at a prognosis. It must also be borne in mind that a mild infection of the endocardium may produce edema or even a slight amount of damage to a valve, which may be cleared up in the process of repair without resulting in a destructive or permanent lesion. This would explain the presence of a transitory systolic murmur during the height of the infection and its absence during convalescence.

Zinsser has clearly pointed out that "in cases of so-called chronic septicemia, in which bacteria may be again isolated by blood culture from the circulation, it is more than likely that the organisms are constantly present, not because they multiply or maintain themselves within the circulation, but rather because they are being continuously discharged into the blood from an established focus in the tissues, as for instance, a heart valve. The natural resistance of the phagocytes against the invasion of the blood stream must be considered as an important factor, and when the bacteria overcomes this defence, the death of the patient results". This opinion explains the possibility of recovery in cases having a single focus which is not embolic, and where the individual has a good resistance, and the gonococcus a low virulence.

I.



CASE REPORT

An unmarried white man, chauffeur, age 20 years, was admitted to the Third Medical Service of the Boston City Hospital on February 12, 1927.

Chief Complaints: Urethral discharge. Sore throat. Generalized joint pains. Pustular rash on neck, arms and legs.

Family History: Father, mother and five sisters living and well.

Past History: Measles and mumps in infancy. In-

fluenza and pneumonia ten years ago. Cervical abscess incised at 5.

Habits: Tobacco to excess. Alcohol occasionally.

Present Illness: Contracted gonorrhea three months ago and had had no treatment. Denied luetic or previous gonorrheal infection by name and symptoms. Painful joints had bothered him for about a month, but had recently become worse. As he was unable to work, he came to the hospital for treatment. Normal weight 156 pounds.

Physical Examination: Fairly well developed and nourished. Good mentality. Pale. Weak. Height 5 ft. 7½ in. Weight 150 pounds. Temperature 98.6; pulse 88; respiration 18; blood pressure 95/70. Eyes reacted normally to light and distance. Tongue protruded in medium line, slight white coat; no tremor. Teeth pyorrheal; in poor condition. Nothing abnormal found in ears and nose. Tonsils not enlarged nor cryptic. No exudate. Pharynx injected. Small lymph nodes were palpable at both posterior cervical triangles. Lungs and abdomen negative. Heart: area normal; sounds of good quality; rate 88; no adventitious sounds; normal rhythm; pulses equal and of good quality; no deficit. Extremities: knee jerks present and equal; no cyanosis, clonus or Babinski. Slight edema and tenderness at the base of the right thumb. Calves of both legs tender. All joints painful on motion. Rash on neck, chest, arms and legs suggest an early furunculosis as it consists of numerous pustules of small size. Urethral discharge was profuse.

Laboratory Findings: White count 7000. Red counts 3,500,000. Hemoglobin 60%. Widal negative. Wassermann and Kahn tests negative. Non-protein-nitrogen 40.5 mgm. Blood culture showed no growth. No malaria plasmodia. Urethral smear positive for the presence of the gonococcus. Urine: cloudy; sp. gr. 1017; albumen, a trace; sugar absent; sediment: much pus, no casts.

Clinical Course: Two days after admission, the patient had a distinct rigor and the temperature rose to 104, the pulse to 110. The following morning the temperature was 97, the pulse 65. This septic temperature and pulse continued for four months, varying from 97 in the morning to 104 or 105 in the afternoon. The pulse varied from around 70 to 120 daily. A section of the patient's chart from April 9th to May 6th shows these variations.

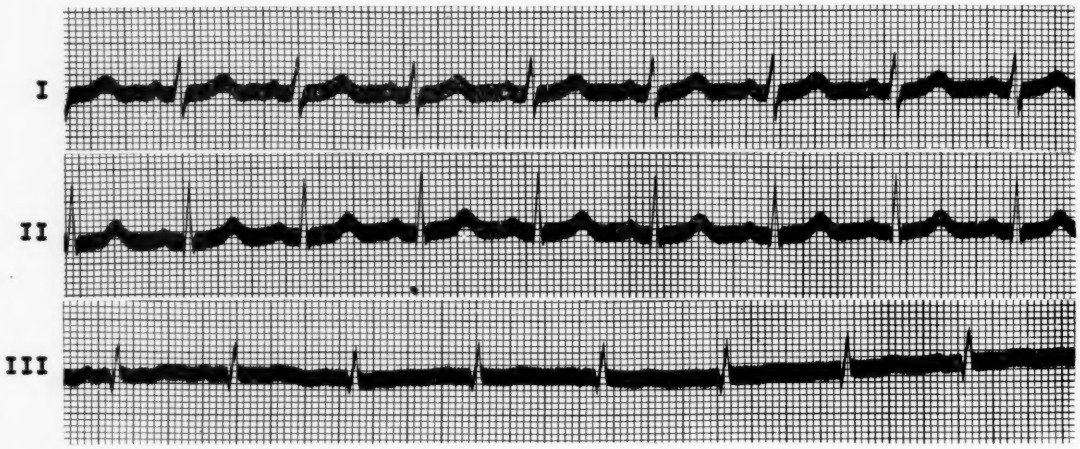
Many chills occurred during the illness and the patient was stuporous most of the time. He lost weight rapidly, at one time weighing but 112½ pounds. The painful joints and the rash gradually improved so that he was permitted to sit in a chair wrapped in blankets for a few minutes daily at the end of the fourth month. Seven weeks after admission, a faint systolic murmur appeared along the left border of the sternum, but this was not transmitted and the pulmonic second sound was not accentuated. There was no cyanosis, no pre-cordial pain, dyspnea or edema, and the heart's area was not enlarged. This systolic murmur persisted for about two weeks and then disappeared and did not re-appear.

At first the patient was not co-operative and refused all treatment. Later he submitted to local irrigations which were given under the direction of the urologists, but at times he would refuse this treatment for a week or so. Once he became despondent and showed suicidal tendencies. A second consultation was held with the urologist and a prostatectomy and vesiculotomy were advised when the patient was thought to have gained enough strength to withstand the operation. The hemoglobin was 50% and the red count 3,100,000 at this time. Biopsies were done at two different times, removing pustules found on the skin, but reports showed chronic inflammatory tissue, no gonococci being seen. The white counts varied from 7000 to 22,000. Repeated Wassermann and Kahn tests were negative. Blood cultures showed the presence of the gonococcus in March, April and part of May, while those taken the latter part of May and June were always negative. Urethral smears were positive in February, March and April, but were negative in May and June. Repeated X-Rays of the heart taken at seven feet showed the heart area to be normal. An electrocardiogram was negative.

Dr. Harold W. Dana kindly took a polygraph tracing, which showed the carotid, radial, and jugular pulses to be normal. Examination of the heart with the patient sitting, lying, and after exercise, showed nothing abnormal.

Treatment: Daily massage of the prostate and seminal vesicles with irrigations of permanganate of potash solution or neo-silvol, as directed by the urologist, were given except on the occasions when the patient refused treatment. Intravenous injec-

II.



Normal Sinus Rhythm, rate 80
P - R = .20 sec.
Q R S = .08 sec.
? Abnormally Low Amplitude, 7 mm.

tions of stock antigonococcus serum were given at first, with disappointing results. Stock and autogenous vaccines were administered later without any perceptible change in the patient's condition.

Lévy advised the use of arsenic for the treatment of systemic conditions due to gonorrhea, and cacodylate of sodium was given intravenously daily for many days in doses of 7½ grains, without noticeable improvement other than the clearing up of the skin lesions.

Pulido recommended mercury for gonorrheal infections other than urethral and 15cc of a 1% solution of mercurochrome were given intravenously for a week, with no effect other than producing a chill and rise of temperature after each treatment. No symptoms of mercurialism or of nephritis followed the use of mercury.

The patient showed marked improvement as the urethral discharge disappeared and regained strength, weight and color rapidly during the latter part of May and June. He weighed 132 pounds without clothing, was up and around the ward and ready for discharge on June 15th, but was held at the request of the police on account of some violation of a probation rule. He stole clothing and "eloped" June 22, 1927.

The various methods of treatment were disappointing as there was no marked improvement until the urethritis was cured. Whether a prostatectomy and vesiculotomy would have hastened the recovery is a debatable question. The surgeons agreed that the patient was too weak for an operation at the time of the consultation. The removal of the focus is comparable to that of diseased tonsils in theory at least. We feel that, as there was no focus elsewhere, and the heart was not involved, the youthful age and wonderful resistance of the patient won the fight, when the urethritis was cured, rather than the medication.

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THE TREATMENT OF INTERNAL HEMORRHOIDS WITH QUININE AND UREA HYDROCHLORIDE*

BY WILLIAM A. ROLFE, M.D.

THE treatment of hemorrhoids by injection is not new, having been in use for many years in this country and Europe. Of the various drugs and chemicals employed for this purpose, solutions of carbolic acid in varying strengths seem to have been the most common.

From the fact that this method of treatment has been practiced very largely by irregulars who, as a class, are not educated in the pathology of rectal diseases, the injection treatment has fallen somewhat into disrepute by reason of unfavorable results and considerable prejudice attaches to what in reality has been proved to be a valuable therapeutic procedure in competent hands.

The use of quinine and urea hydrochloride solution in the injection treatment of internal hemorrhoids was originated in this country by Terrell[1] of Richmond, Va., who, up to the year 1925, reported the treatment of 3000 cases with uniformly good results.

This form of treatment is painless, and has the distinct advantage of being ambulatory, rendering it particularly well adapted for use in outpatient clinics where large numbers of hemorrhoid cases are seen. As most of these patients belong to the working class and can ill afford the time to undergo operative treatment, it will at once be apparent that any other method which is as efficacious as surgery should be the one to be chosen.

In the rectal clinic of the Boston Dispensary, where a great many hemorrhoid cases are seen in the course of a year, the treatment by injection of quinine and urea solution has been in use for over 12 years, a period of time long enough to afford exceptional opportunity to observe and evaluate its worth. The number of cases thus treated during this time run into the hundreds and the results have shown it to be an efficient and reliable method.

While it must be admitted that this form of therapy has its limitations, it has been found that for simple uncomplicated hemorrhoids, which are the most common, it has given satisfactory results with a very high percentage of cures. Care must be exercised in the selection of cases, as there are certain types of hemorrhoids which should not be subjected to this treatment. It should not be employed in strangulated, sloughing or external hemorrhoids, or in cases having sphincteric spasm, this last usually denoting some infective process in the ano-rectal region. Obviously, if cases are seen with some co-existent pathologic lesion which demands surgical measures, hemorrhoidectomy should be done at the time of operation. However, for the great number of patients who visit clinics for the relief of bleeding and protrusion, where examination shows that only simple uncomplicated hemorrhoids are present, the use of quinine and urea injections will be found safe and efficient.

Recurrences have been observed in a small number of cases, usually from one to three years

*From the Rectal Clinic, Boston Dispensary.

after injection. These have been due, almost invariably, to the fact that an insufficient number of injections had been given. As bleeding usually ceases after the first injection, this symptomatic cure is misleading and treatment should be repeated until examination shows that the hemorrhoids have disappeared. This takes on an average of from 6 to 8 injections at intervals of 5 or 6 days.

Quinine and urea solution injected into a hemorrhoid causes a fibrinous exudate to form which, by pressure on the vessels, diminishes the blood supply of the pile, resulting in its atrophy. After the requisite number of injections have been made, the hemorrhoidal tumors will disappear completely and are replaced by fibrous tissue.

In the large series of cases which have undergone this treatment in the Boston Dispensary, no sloughing, abscess formation, hemorrhage or other complications have been observed.

Very rarely a case having an idiosyncrasy to quinine will be encountered with alarming symptoms of vomiting and collapse. The usual treatment for collapse should be given and the patient's condition will improve in a few hours. Needless to say, the injection should not be repeated.

METHOD OF USE

The patient is placed on a table in the right or left Sims position with the buttocks well over the edge. A good headlight is a necessity. A 5% solution of quinine and urea hydrochloride, freshly made with sterile distilled water, should be drawn into a 5 c.c. glass syringe to which is attached a 25 gauge needle 4 inches long. Each hemorrhoid should be exposed with a Brinkerhoff or an Otis rectal speculum and swabbed with a 3% solution of mercurochrome, or if this be not available, with tincture of iodine, although the latter is irritating to the rectal mucosa. This preliminary sterilization is very important and should not be omitted. The needle is introduced into the centre of the hemorrhoid as high as possible and from 5 to 15 minims, depending on the size, slowly injected. The injection should always be made well above the ano-rectal line, for if introduced under the anal membrane or too near the mucocutaneous border, a very painful oedema will occur.

As the solution is acid in reaction, it will sometimes be noted that the patient will complain of a slight dull ache in the rectum. The acidity can be reduced by the addition of a drop of a saturated solution of sodium bicarbonate to the contents of the syringe.

Constipation should be corrected, preferably by the use of liquid petrolatum.

REFERENCE

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ART REFERENCE LIBRARIES AND MEDICINE*

BY ALFRED ELA

THE intimate relations between the graphic arts and medicine need not be enlarged upon before this Club, many members of which have written upon branches of the subject; how this is handled by the medical libraries (such as the Boston Medical Library), by the medical museums (such as the Wellcome Historical Medical Museum, London), by some great hospitals (such as La Salpêtrière, Paris) and by the numerous private collectors, cannot be treated within the time assigned me. Accordingly, attention will be confined to two art reference libraries, even here omitting most of the details to be found in the printed articles herewith submitted[1,2].

In London is the Witt Reference Library of Pictures[1], which now has about 300,000 reproductions of paintings and drawings, mostly obtained by dissevering books and catalogues, this being one of the few defensible instances of "Grangerizing". The arrangement of these reproductions can best be explained by sketching the growth of this library. Nearly thirty years ago, two Oxford undergraduates (one at a men's college, the other at a women's) independently began collecting, on a large scale, photographs of paintings and all available information thereon. Becoming much interested in the growth of each other's gleanings, they finally found, as friends jokingly said, the only way to unite their separate collections was to marry. During all the subsequent years, in the intervals snatched from their successful professional, public, and artistic activities, they have accumulated the present total, each reproduction having written on its back all accessible details, from the most varied sources, regarding the picture, etc.; digested data are also given as to the artists, now aggregating over 13,000. Throughout, however, the point of view has been that of the art specialist[3,4]; therefore, the arrangement is "by artists" classed by their schools, and this arrangement has been marvelously perfected within its scope. The cataloguing by subjects is left chiefly for the future, and thus the medical man cannot yet make such ready use of the material as can the art specialist.

In New York, modelled upon the Witt, is the Frick Art Reference Library, opened nearly four years ago[2]. It already has 100,000 repro-

*Presented before the Boston Medical History Club, January 27, 1928.

ductions of pictures and 20,000 books on its peculiar fields in the arts; a special collection is being made of 20,000 photographs of illuminated manuscripts which, when completed and accessible, will supply many side-lights on mediaeval medical customs. Furthermore, the Library has added a general card-catalogue, putting subjects into one alphabet with artists, etc.

Each of these libraries is very willing to give aid by mail, but, it seems to me, owing to dissimilar methods of approach, the medical researcher must as yet dig out from their mines of material the ore he needs. These libraries evidently have a keen spirit of helpfulness but cannot be expected to realize what a wealth of material they have for medical illustration and history.

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*In the Fogg Art Museum, Cambridge, Mass.

THE DOCTOR LOOKS AT CULTURE*

BY JOSEPH COLLINS, M.D.

THERE are many reasons why a youth studies medicine, chooses it in preference to any other profession, but whatever incentives he has, success is his goal, not only success measured by professional reputation and material prosperity, but by self-realization.

Two elements facilitate self-realization: taking thought and gaining culture. Familiarity with the intellectual activity of the past and present and reflection upon its bearing on our welfare, conduct and lives constitute culture.

It should be part of education, but in reality the relationship between them is distant. A man may be cultured and have small education, Walt Whitman for instance, or may be greatly educated but not necessarily cultured, Robert Burton for example.

Education is to the building of a house what culture is to its decoration. Vocational education equips the mind with the essentials of the trade or profession; culture adorns it with the humanities. Physicians should study living languages and the sciences for many reasons and steep themselves in the humanities for two: to fill their own reservoir of pleasure and to generate energy in their work. By studying physiology and pathology they will gain self-approval; by studying human nature they will gain the approval of others. The sort of culture they need is best obtained by familiarity with great poets, philosophers, biographers, thinkers, musicians and art.

It is agreed that the welfare of the soul is enhanced by culture, but that it enhances professional efficiency is not so well recognized.

Culture is obtainable everywhere, in galleries, museums and libraries by preference. Neither Benjamin Franklin nor Thomas Jefferson had been to college; William Osler and William James had not either; yet they were men of great culture. If colleges should teach students to think, college might be the best place to attain culture.

*An Abstract of an Address delivered before a meeting of Boston doctors at the Tavern Club, January, 1928.

I am convinced that the medical student who knows the great classics of the past is better equipped to practice medicine than he who has Quain, Osler and Howell at his finger tips. Anyone who knows anything thoroughly, be it history or literature, music or sculpture, may achieve a reputation for culture. Arpad Gerster, Walter James, Pearce Bailey and Frank Merea were ideal men of culture.

Culture has a reputation for creating an elite by giving to some advantages that others have not: anyone can attain it so there is no favoritism. It is said to engender idleness by unfitting man for ordinary labor: John Cotton Dana is the living example that it does not. It has been objected that by its dealing with the past, it hampers progress: thrilling prowess and civic virtues are never out of date and ancient literature is filled with such examples. And the creation of an elite should be desired and striven for.

Were there any unanimity of opinion about what the duties and even the meaning of medicine are, culture might be given a larger place in the profession. Without basic scientific knowledge it is of little use, but all science is just as ineffectual. Man is the problem to understand when the doctor is confronted with illness and science does not consider man but facts. To draw logical inferences is one of the physician's duties and he cannot do so if he bases himself only on scientific knowledge. A physician may be successful though uncultured, but the majority of immortal physicians were students of matters beyond professional science. If children could develop the habit of reading, and be taught to like it, they would become men of culture as naturally as they become anything they choose to be.

Some physicians of the past have left literary remains that are not to be disdained. Cadwallader Colden, Benjamin Rush, Samuel Bard, Elihu Smith, David Hossack, John W. Francis, William Gibson, James Jackson, Daniel Drake, Elisha Bartlett, Samuel Gross, Oliver Wendell

Holmes and Henry Bigelow all achieved self-realization and culture.

William Osler and Weir Mitchell are shining examples of the beauty of great culture in the physician's mental luggage. Anyone who is disposed to doubt that the physicians who wrote their names indelibly on the scroll of life were men devoted to the humanities has only to read Benjamin Ward Richardson's "Disciples of Esculapius" to have his doubts removed. And Charles Richet's little book "Le Savant" shows how delightful it must be to be both a great physician and a man of culture.

The student in medicine is not getting a square deal. Most of the work he has to do is dull and dreary and wholly concerned with technical acquisition. His medical education should be made attractive.

My suggestion to remedy the failure of colleges to provide students with general culture is this:

No professor shall be a member of any Medical Faculty who has not stood, or cannot stand, a verbal examination in Medical History conducted by a Committee made up of learned professional men, that is by men of learning beyond their profession. Candidates for professorships of histology, for instance, should be familiar with the life of Anthony Leeuwenhoek; for physiology should talk entertainingly and instructively of Cesalpinus, Harvey, Joseph Priestly and Stephen Hale; for anatomy should know Mondinus, Vesalius, Fallopius, Eustachius and Sylvius thoroughly. The candidates for bacteriology should spread good knowledge of Spallanzanzi, Pasteur, Koch, Roux, Behring, Reed, and Ross. How an examiner with sadistic streaks would exult should the opportunity come to him to examine some professors of what was once called the Theory and Practice of Medicine as to what they knew of Brown, of Cullen, of Meade, of Radcliffe, Black, Heberden, Haller, Werlhof, Broussais, Louis and so many others! Quacks should be known also: Paracelsus and Mesmer, Perkins and Greatrakes.

A faculty made up of men who had passed such an examination could make their teachings engaging and inspiring and whet the appetites of their pupils for further historical and cultural pabulum.

When I began to devote my energies largely to Neurology, I still kept a general medical service in the hospital and several times served as examiner of candidates for the House Staff. The reputation which I shared with all neurologists, of being "more or less crazy", was enhanced, I fancy, by confining my questions in the oral examination to general education rather than technical education, questions that tested the candidate's emotional reactions. If a man told me correctly who invented the steam engine, and how he came to do it, and then in reply to further interrogation of some of the benefits that had flowed from it told me that by means of it fat men were able to get to Coney Island in a quarter of the time it took a hundred years ago, I gave him a perfect mark, because it suggested to me that he had a sense of playfulness and a sense of humor. If he knew about the Dutchman who discovered in Java the skull of pithecanthropus that was thought to be the link missing between man and monkey, but expressed some doubt of the validity of the claims that were made for it, I felt that association with him for eighteen months would be beneficial, skepticism being such a desirable possession for any physician to have.

If he had intimated that one of the reasons for being satisfied with our alleged Simian ancestry was that further investigation might reveal a far less desirable one—the snake, or the shrimp for instance, I would have implored him to join us.

The difficulty is to get at the student. He is sometimes ignorant himself of the essentials of his vocation. They are character, culture, commiseration and courage; for the physician must eventually treat the ills of the world and to do so successfully he needs all of these qualities. Not only must he develop his personality but he must help create a body of public opinion whose momentum will wipe out our self-consciousness, crush our prejudices, destroy our self-righteousness and purge us of a besetting sin: subordinating the universal to the individual.

EDITORIAL NOTE.—This abstract presents some of the author's opinions and suggestions which will appear in a chapter of a book which he is preparing.

UNITED STATES PUBLIC HEALTH SERVICE

CHRONOLOGICAL LIST OF CHANGES OF DUTIES AND STATIONS OF COMMISSIONED AND OTHER OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

FEBRUARY 29, 1928

Associate Sanitary Engineer Leonard Greenburg. Directod to proceed from New Haven, Conn., to Bridgeport, Conn., and return, in connection with the ventilation studies being conducted by the office of industrial hygiene and sanitation. February 25, 1928.

Sanitary Engineer H. R. Crohurst. Directed to proceed from Cincinnati, Ohio, to Gary, Indiana, and return, for the purpose of participating in the Lake Michigan Sanitation Congress to be held in that city March 6, 7, and 8, 1928. February 27, 1928.

Acting Assistant Surgeon Nat K. King. Directed to proceed from Laredo, Texas, to Roma, Texas, and return, for the purpose of supervising the inauguration of quarantine and immigration activities with the opening of the new bridge at Roma. February 27, 1928.

Assistant Surgeon General F. A. Carmelia. Directed to proceed from Washington, D. C., to Milford, Delaware, and return, for the purpose of making an inspection of the new quarantine Diesel tug under construction at that place. February 28, 1928.

Official:

H. S. CUMMING, *Surgeon General.*

NEW ENGLAND SURGICAL SOCIETY

REPORT OF HERNIA WORK UNDER LOCAL ANESTHESIA*

BY D. C. PATTERSON, M.D., F.A.C.S.

THE great advantage of local anesthesia for hernia repair on poor risk patients, is obvious. It is inexcusable not to use it in cases of strangulated hernia, as many patients will be saved that could not survive the ordeal plus inhalation anesthesia.

In the average risk case, local anesthesia has several advantages over other methods. It is less dangerous. Post-operative complications, especially pulmonary, while by no means absent, are less frequent and less severe. Nausea and vomiting are rare. Greater muscular relaxation is obtained and the possibility of having the patient strain or cough during the operation is, at times, a real help.

Just recently, I was operating on a recurrent hernia, and after removing an indirect sac, and making the repair of the wall, I had the patient cough, and a small direct hernia, almost on the pubes, came into view. I believe I would have missed that second sac, had the patient been asleep, for it was fully an inch and a half from the first protrusion.

Where assistance is limited, an anesthetist is unnecessary, and the patient does not require the constant watching of a nurse until he awakens.

The criticisms that are most often heard against local anesthesia for hernia repair, are that it takes more time, that convalescence is disagreeable, and that wound infection and recurrence are more apt to occur than in repair done under inhalation anesthesia.

It probably does take a little more time, but only a few minutes, and that is due to the more careful handling of the tissues. It would be well if more time were used for this purpose when the patient is asleep. That the other charges are not well founded, is apparent to anyone who has had much experience with local anesthesia.

The object of this study of cases, was to determine the immediate post-operative condition of the patient, and the incidence of recurrence.

The method adopted has been as follows: Patients are prepared as usual. One half hour before operation, morphine grain ¼ with atropine grain 1/150 are given. For some time, I used divided doses of morphine with magnesium sulphate, but found no advantage in so doing. 1% novocain solution, freshly prepared and autoclaved for ten minutes at 110°, is injected to block the ilio hypogastric and ilio inguinal nerves. A second injection is made just over Gimbernat's ligament. Very rarely is further use of the syringe necessary. Forty C. C. of solution has proven sufficient in nearly all cases. I have discontinued the addition of adrenalim to the novocain, as I never saw any advantage in its use. In fact, I feel that it sometimes does harm, for since discontinuing it, we have never had to give a patient any stimulation during or after the operation. I should state, however, that we frequently let our patients inhale aromatic spirits of ammonia. They seem to derive some satisfaction from doing so.

We make our patient as comfortable on the table as possible, and do not fasten his arms tightly at his sides. Occasionally a patient is encountered, who is too restless to continue under local anesthesia with comfort. I think it is much better to give such patients a little gas-oxygen than to persist, and have them excited and uncomfortable. Aseptic technique is, of course, of the first importance, and eternal vigilance is the price of asepsis. We keep our patients in bed for two weeks following the operation. This rule is excepted in the case of very old patients, for obvious reasons.

After operation, I believe the patient should be kept comfortable. Morphine is never withheld when needed. Water is given in quantities. The bed is raised a notch and the knees elevated. This relieves tension and is a comfortable position. Patients are usually discharged the second day after getting up.

The question of recurrence after hernia operations, is an important one, and makes the problem of repair demand our sincerest efforts.

The operation is regarded lightly even by some surgeons of repute. Recently, one man told me that he always turned the hernias over to the house staff. Had he been conversant with the end-results of hernia operations, I do not believe he would regard the operation as of such little consequence.

I think most recurrences will show, on examination, some evidence of their presence within six months, but not to the patient however, for as a rule, they are unaware of its presence. Four cases in this series reported that they were entirely cured, but examination showed definite, though small, recurrences.

Dr. Taylor, in a study of cases at Johns Hopkins Hospital, found that, where among cases examined at the hospital, there were 8.4 of recurrences in indirect hernias. There were only 3.4 among a large number of the same type who responded by letter. The percentages of recurrence for direct hernias were 29.7 for those examined at the hospital, and only 6/3 for those reporting by letter. This is a very striking discrepancy. It is obvious therefore, that reports

*Read at the Annual Meeting in Manchester, N. H., 1927.

on hernio-plasty results are of no value, unless a careful examination of the patient is made.[1]

I think one of the most frequent causes for a recurrence is failure to detect the presence of a second sac. In several cases, I have found the recurrent hernia to be of a different type from that found at the first operation. This leads one to think that the second sac might have been present even at the time of the first operation. That this is a reasonable supposition, is supported by the fact that the second operation is, in a majority of cases, successful. However, this latter may be the result of a more careful repair at the re-operation.

Lipomas emerging through the internal ring, can act as sort of a shoehorn for a hernial descent. They should be dissected free and removed. Frequently, the internal ring is enlarged, admitting at times, two fingers. I always made a repair of this defect.

Infection, post-operative vomiting, and coughing all play their part in the production of recurrences. The two last named factors will be a lessened danger under local anesthesia.

There were:

TABLE I

112 operations in 100 patients.
12 cases were bi-lateral. 7 of them done at one sitting. 5 at two sittings. 5 to 7 days apart.
Ages ranged from 16 to 86 years.
99 anesthesias were entirely satisfactory.
1 patient had gas while appendix was removed.
2 patients had gas to reduce intestines.
1 patient had gas for operation on sigmoid.
2 patients had gas for operations on undescended testicles.
34 patients had no morphia following operation.
35 patients had 1 dose of morphia following operation.
17 patients had 2 doses of morphia following operation.
19 patients had 3 or more doses of morphia following operation.
8 patients had nausea and vomiting. None for more than a day.
16 patients were catheterized for from 1 to 4 days.
5 patients had ice bags to testicles, none for more than a week. Low incidence of swelling was surprising.
0 patients had infected wounds.
1 patient developed phlebitis, after he had left the hospital. He had varicose veins.
3 patients had bronchopneumonia.
11 patients had coughs that required treatment.
Nearly all patients had an elevation of temperature for one to three days from 100 to 101°.
1 patient died, age 76 years. Had strangulation ten days. Gut had ulcerated into sac. Stood operation well. Died second day.
1 patient died, aged 64 years. Strangulated four days. Developed pneumonia on the sixth day.
Average stay in hospital 16½ days following operation. Only 3 remained over 20 days and they were treated for other diseases.

TYPES OF HERNIA

Indirect Ing.	Direct Ing.	Combined Sacs
R-29 L-25	R-17 L-11	R-18 L-8

Femoral	Umbilical
2	2

Strangulated	Inguinal	Femoral	Umbilical
11	8	1	2

Recurrent Ing.	Sliding	Lipomas
5	4	17

Undescended Testicles	Varicosities	Ing. ring repair
3	3	16

Hydrocele
1

TABLE II

The total number of repairs examined 87.	
8 found to have recurrences	9.2%
Recurrence for inguinal hernia	9.6%
42 cases of indirect hernia examined	
2 recurrences found	4.8%
23 cases of direct hernia examined	
3 found to have recurrences	13. %
18 cases combined sacs examined	
3 recurrences were found	16.5%

Four of these recurrences were so small that the patients were not aware of their presence. Unless a careful examination had been made, they would have been classed as cures.

Another recurrence was in a patient with a strangulation of over a day's duration. He had a severe cardiac lesion so that repair was not as thorough as it otherwise would have been.

REFERENCE

1 Taylor, Adrian S.: Annals of Surgery, September, 1920.

DISCUSSION

DR. R. H. MILLER, Boston: I think it is a very important and proper thing that the attention of any group of surgeons should be called to the advantages of local anaesthesia every hour of the day. I am perfectly sure that all of us think too little of local anesthesia and are too careless in advising general anaesthesia, and in a large series of cases of general anesthesia, we lose a few which we otherwise should not. I have recently been shocked at seeing four robust, healthy men over 50 die following a general anesthetic, and although those cases were not hernias, but abdominal operations, I know perfectly well that each one of those cases could have been done under novocaine and morphine and each one could have recovered; and each one of us when planning an operation on a man over 50 who is over-weight should stop and ask himself whether he should use a general anesthetic or not and ask himself about the possibility of a pneumonia. If we do that, we will save a number of patients who otherwise would have died under a general anesthetic.

I would like to ask Dr. Patterson whether he uses scopolamine before the operation.

DR. D. C. PATTERSON, Bridgeport: We had used that but we found that the usual injection of morphine with atropine is as satisfactory as anything.

DR. H. G. JARVIS, Hartford: This question of the use of a local anesthetic as confined entire-

ly to hernial operations resolves itself into two definite points: one, in regard to the patient; and the other, in regard to the doctor: I feel that in regard to the patient, in the large, plethoric patient it is a good thing to use and especially in the strangulated hernia; but in the highly nervous people to whom the operating room is an ordeal it isn't a good idea to use local anesthesia. I also feel that the use of morphine and scopolamine cannot be graduated according to the dose but according to the patient, whether large or not.

I think the most important thing is in regard to the post-operative complications. I think that the complications that arise, as pneumonia, could be avoided if the local anesthetic were used.

We always raise up the skin first before we inject the ilio-inguinal or iliohypogastric nerve.

I think Dr. Patterson should be congratulated on the fact that he did 113 operations without an infection.

Dr. W. E. Hartshorn, New Haven: I have enjoyed very much listening to Dr. Patterson's paper on hernia. It is a most important subject.

I have found that one half of one per cent. novocaine is most satisfactory in these cases and we have been using this at the New Haven Hospital for some years instead of one per cent. Gas or ether is used if the patient is not a good mental risk for a local anesthetic.

The routine procedure with me after ligation of the sac has been to fix it under the conjoined tendon with an interrupted suture using the long ends of the sac ligature for this purpose.

It is very important to free the sac around the internal ring before ligating it so that it will really drop back into the abdomen. I believe this has a great deal to do with successful hernia repair.

Bassini's operation is I think the most satisfactory. Special care should be exercised in placing the first suture close to the spine of the pubis in such a way as to close the lower angle of the wound completely. I use a double No. 2 chromic gut for the entire closure below the cord. Sutures should also be placed carefully where the cord emerges at the internal ring. The sutures from the conjoined tendon to Poupart's ligament must be inserted as low as possible on the ligament.

I always overlap the aponeurosis of the external oblique suturing the upper flap over the cord to Poupart's ligament.

Experimentally it is claimed that fibrous or aponeurotic tissue sutured together hold much firmer than muscle to aponeurosis. Some surgeons in hernia cases use a suture shredded from the external oblique aponeurosis where the overlapping is done.

I think it is inadvisable to remove an appendix through a hernia incision even when the caecum appears in the hernial sac. I tried it once and had a badly infected wound with which to contend. I am afraid this may have been due to poor technique.

I have had few recurrences when I have done the Bassini operation. None that I can remember in young individuals. When they occur the patient has a neglected hernia and is usually over fifty.

I have had one left femoral vein thrombosis after doing a right hernia. The patient's age was fifty-five and he was very obese.

Dr. Charles A. Porter, Boston: I want to endorse Dr. Patterson's practice in his use of local anesthesia. It is my opinion that its great value in selected cases over any form of general anesthesia is not yet fully recognized and acted upon. I believe very strongly that the time will come when, at least in peripheral operations, the first question the surgeon will ask himself is, cannot this be done in this case satisfactorily under local anesthesia? To be sure the technique is a little more difficult, and the time consumed in the operation a little longer, but there is much to be gained in instructing the assistant, gentle manipulation of tissues, in careful hemostasis, etc., which is not necessary when the patient is anesthetized. In performing an operation for cure of hernia, I feel that the commonest error is the tying of sutures too tightly.

Dr. David Cheever, Boston: It seems as though good, old general anesthesia ought to have a word said for it—I didn't come prepared to discuss this paper. I think in the fourteen years that the Peter Bent Brigham Hospital has been in existence there have been two deaths in non-strangulated hernia operations, one from faulty anesthesia by an inexperienced anesthetist during the war; and the other from a needle puncture of the iliac vein in a femoral hernia. I think it is fair to say that most of the operations have been done under a general anaesthetic, and that gives general anesthesia a pretty good record.

Undoubtedly local anesthesia is an important adjunct to our armamentarium; but I do feel that a surgeon ought not to be obliged to use a local anesthetic to compel him to handle the tissues with delicacy; he ought to handle them that way any way.

I think that the operation under novocaine lasts at least one-third to one-half or two-thirds again as long as an operation done under a general anesthetic; and as I have watched some of the cases done at our hospital, I have thought that the patients were going through a considerable ordeal. Of course, in speaking of a general anesthetic I am not speaking of ether but of one of the newer anesthetics such as gas-oxygen which we use with success and which seems so innocuous, that there is no contraindication to its use.

One question I would like to ask Dr. Patterson—I noticed that he mentioned 14 cases of

dilated internal inguinal ring, the ring being dilated.

DR. D. C. PATTERSON, Bridgeport: Enlarged.

DR. CHEEVER: I feel that that isn't a very significant thing to diagnose in hernia. It is a very intangible thing.

DR. KENDALL EMERSON, Worcester. It seems to me that the patient himself may sometimes be the deciding factor in what anesthetic to use. In the last two hernias I did I asked the patient to decide, and each patient quoted an unfortunate experience and decided against having a local anesthetic. That may be the determining factor in deciding what the choice should be.

DR. EDWARD R. LAMPSON, Hartford: Pneumonia following operation isn't always due to the anesthetic. A good many of them are embolic. I happen to have had two cases done under local anesthesia which were followed by lobar pneumonia. I do as many cases under local as patients will allow me.

DR. ROYAL P. WATKINS, Worcester: I would like to ask the doctor how long a time elapsed after the operation before he allowed the patients to go back to work especially if they did heavy work such as lifting.

DR. D. C. PATTERSON, Bridgeport (closing): Local anesthesia is one of the really great advances in surgery.

It is especially adaptable for hernia repair, and should be more generally used.

Post-operative complications are lessened by its use.

Convalescence is relatively comfortable.

Recurrence of hernia is no more apt to occur than with inhalation anesthesia.

While I prefer to operate on these cases under local anesthesia, the patient is given a general anesthetic if he insists on it.

Dr. Cheever asks about the enlargement of the internal ring. Of course, the size of the ring is determined only after exposure, then it is frequently found that it will easily admit two fingers. I think this defect should be repaired. I always do this, using linen suture, as in the other work on the transversalis fascia.

You will notice a very high percentage of Direct and Combined sac cases in this series. This is owing to the fact that most of these patients are engaged at heavy work, and have developed the so-called occupational herniae. They do not represent a general average percentage. They are hard cases to make a good showing with, on account of the nature of their defect and from the fact that they have to return to hard labor.

Patients are advised that they can return to work in six weeks after operation, but that they should do no heavy lifting for six months. I doubt if many can follow this advice.

The convalescence of these patients was extremely comfortable, and free from complications.

A careful study of post operative results in hernioplasty will, I believe, show that the incidence of recurrence in this series, is below the average.

UNITED STATES PUBLIC HEALTH SERVICE

CHRONOLOGICAL LIST OF CHANGES OF DUTIES AND STATIONS OF COMMISSIONED AND OTHER OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

FEBRUARY 23, 1928

Surgeon (R.) O. E. Denney. Ordered to active duty under terms of commission as Surgeon in Reserve Corps, effective March 1, 1928, and directed to remain on duty at M. H. No. 66, Carville, La. February 15, 1928.

Assistant Surgeon G. J. Van Beeck. Directed to proceed from Ellis Island, N. Y., to Thiells, N. Y., and return, in connection with field investigations of mental hygiene being conducted by the Public Health Service. February 17, 1928.

Surgeon H. McG. Robertson. Directed to proceed form Washington, D. C., to Thiells, N. Y., and return, in connection with field investigations of mental hygiene being conducted by the Public Health Service. February 17, 1928.

Surgeon C. H. Waring. Directed to proceed from Washington, D. C., to Thiells, N. Y., and return, in connection with field investigations of mental hygiene being conducted by the Public Health Service. February 17, 1928.

Assistant Surgeon G. T. Sprague. Relieved from duty at Fort Stanton, N. Mex., and assigned to duty at U. S. Public Health Service Relief Station, San Diego, Calif., effective March 1. February 17, 1928.

Surgeon W. L. Treadway. Directed to proceed to Warsaw, Poland, and other points in Europe where medical examination of aliens are being conducted when directed. February 17, 1928.

Surgeon C. L. Williams. Directed to assume temporary charge of U. S. Quarantine Station, Rosebank, N. Y., during absence of Medical Officer in Charge. February 18, 1928.

Surgeon J. W. Schereschewsky. Directed to proceed from Boston, Mass., to Washington, D. C., for conference at the Bureau relative to public health matters, thence to New York City, N. Y., to attend meeting of the American Society for the Control of Cancer on March 3. February 18, 1928.

Assistant Surgeon General W. F. Draper. Directed to proceed from Washington, D. C., to Minneapolis, Minn., and return, for the purpose of representing the Service in the capacity of a delegate to the Seventy-Ninth Annual Session of the American Medical Association to be held in that city June 11-15, 1928. February 18, 1928.

Assistant Surgeon General Thomas Parran, Jr. Directed to proceed from Washington, D. C., to Philadelphia, Pa., and return, in connection with venereal disease control measures. February 21, 1928.

Assistant Surgeon Albert E. Russell. Directed to proceed from Washington, D. C., to Wyco, West Virginia, during the month of February, in connection with the dust study being conducted at that place by the office of industrial hygiene and sanitation. February 21, 1928.

Associate Sanitary Engineer Leonard Greenburg. Directed to proceed from New Haven, Conn., to Washington, D. C., in connection with the ventilation studies being conducted by the Office of Industrial Hygiene and Sanitation. February 21, 1928.

Surgeon J. M. Gillespie. Directed to proceed from Philadelphia, Pa., to Ellis Island, N. Y., and return, to accompany four seamen patients to Ellis Island. February 21, 1928.

Official:

H. S. CUMMING, *Surgeon General.*

MEDICAL PROGRESS

RECENT PROGRESS IN PHYSIOLOGY

BY PERCY G. STILES, PH.D.

THE *Significance of Viscosity in Muscle.* Here is a matter which has been little emphasized in the past but which now appears important. Attention has been directed to it through the lectures lately given in this country by A. V. Hill and particularly by his delightful book, "Living Machinery[1]." What is meant by viscosity is, roughly speaking, the resistance which a body opposes to distortion. A perfect fluid has a minimum viscosity. A sluggishly flowing liquid like the proverbial cold molasses has much. It is a familiar fact that a body like a rather soft candle may be gradually bent whereas the attempt to bend it quickly would result in a fracture.

The viscosity of muscles limits the rapidity with which they can contract. The more swiftly they execute movements the more largely their energy is expended in overcoming their own internal resistance to a change of form and the less the margin available for external work. It follows that the most rapid movements which we can make must always be founded upon an extravagant expenditure of ammunition or fuel. They can never be very forcible. Yet the viscosity of the muscles is not altogether a handicap, it is shown to be protective also. Hill's calculations make it clear that if muscular contractions were not retarded by this property of the tissue they might have so abrupt a character as to do violence to the parts. If such rapid motion could be imparted to arms or legs dislocations or other injuries must result.

The muscles of small animals are organized to permit quick contraction. Their viscosity must be low. The short limbs can be set into swift motion without developing a damaging momentum. As there is this marked difference between the viscosity of muscles in large and small animals so there is apparently a moderate difference to be deduced when the muscles of one man are compared with those of another. A high viscosity must hinder the attainment of the best speed in running and limit the velocity which a pitcher can impart to the ball. Hence it may well be that one of the numerous adaptations secured by training consists in a reduction of this internal resistance to change of form.

A New Theory of Muscle Contraction. While much has been learned about the chemical changes and the release of energy which accompany muscular movement there has remained a gap in our knowledge as to the process by which the chemical energy is transformed to tension. Two types of theory have been attractive. According to one the pull of the muscle is the result of the migration of water molecules; according to the other it is the expression of a temporary increase in surface tension at certain localities. But the great masters of the science, including Hill, have told us that neither conception will satisfy the demands of mathematical analysis.

In view of this unsatisfactory situation fresh theories must be welcomed although each requires a rigorous testing. One has been advanced by Janet Howell Clark[2]. It is suggested that the process in the fibers when they are activated has much in common with crystallization. The contraction of muscle fibrils is generally supposed to be the direct consequence of the liberation of acid. Mrs. Clark has shown that when an artificial system containing ammonium oleate is slightly acidified minute crystals are produced. It is shown that a similar formation of crystals in the doubly refracting bands of the living muscle might be expected to lead to a development of longitudinal stress of the observed order. Evidence favorable to the theory has been secured by x-ray photography.

The Metabolism of Nerve. In comparing muscle with nerve we have been accustomed to stress the intensity of the chemical activities of the former as contrasted with the extreme economy of substance which characterizes the latter. It is entirely proper to continue to do this. The scale of the respiratory exchange and heat production on the part of nerve-trunks is exceedingly small. Only very recently has it been possible to make measurements of the processes involved. But this is now accomplished and perhaps the most interesting physiological paper of 1927 has been that by Gerard[3] presenting the experimental facts.

It is demonstrated that a resting nerve consumes oxygen and gives off carbon dioxide. The ratio between the two, with carbon dioxide as numerator, (the respiratory quotient) is about 0.77. When a nerve is excited by a series of shocks its intake of oxygen and output of carbon dioxide may be increased two or three fold. The ratio (0.97) between the extra quantities of carbon dioxide and oxygen in this case supports the belief that carbohydrate is being oxidized. So refined is the technique employed in this study that it enables Gerard to point out certain curious differences between the qualitative metabolism of nerve and muscle. A muscle can work in the absence of free oxygen because its energy is derived primarily from a breakdown

of carbohydrate or related material which is not oxidative in nature. The activity of nerve seems to be necessarily oxidative but an oxygen reserve appears to be carried for emergencies. Twenty years ago it was commonly held that muscle had likewise a reserve store of "intramolecular oxygen" but we have been led to abandon this belief.

Of course the metabolism of muscle must be great for it is the source of mechanical work. The metabolism of nerve has no such purpose. It is related to the other somewhat as the pressing of an electric button is to the resulting discharge of a sixteen-inch gun. Nature has reduced it to an incredibly low level. Gram for gram the metabolism of active nerve fibers has something like one six-thousandth of the intensity of that in tetanized muscle. When the mass of the two is considered it is the estimate of Gerard that the expenditure of substance in the motor nerve-fibers at moments of discharge is about one-millionth of the associated breakdown in the muscle.

Body Weight and Efficiency. Wang, Strouse and Smith[4] have reported a study of this question which has unexpectedly striking and clear cut results. With young women as subjects they have compared the metabolic cost of a certain standard performance upon a bicycle. The group rated as normal in weight carried out the prescribed task with an increment of 226 per cent. over the resting rate of metabolism. The same accomplishment cost the underweight an excess of 323 per cent. The heavy riders were obliged to spend 368 per cent. over and above the initial.

When we survey these figures we should consider the following facts. The resting metabolism of the underweight subject is low: hence the increase tabulated did not raise it to so high a level as might at first be supposed. The resting metabolism attending an overweight condition is high: therefore the increase recorded carried it far above that of the normal. If the point of departure in each case is borne in mind it will be seen that to be underweight is to be moderately handicapped while to be overweight is to be more severely limited in doing work of this type. If there is anything surprising here it is the inefficiency of the light-weight organization. The suggestion is obvious, though the determination would not be easy, that a "normal" weight is that one at which muscular work is carried on with the least increase above the resting plane of metabolism.

Obesity. While we are on the subject of body weight it may be well to call attention to a paper by Bauman[5], a well considered summary of present opinion concerning the causes of this condition. We are accustomed to say that overweight is the expression of a constitutional tendency. Sometimes the peculiarity may fairly be described as an appetite in excess of the current needs of that system. But it is not by any means clear in every case that the fat person is a large eater. The suggestion is often opposed with vigor. If weight is added in spite of moderation in supply it seems necessary to conclude that the heavy man has an economical organization, that his activities are supported with less than the usual consumption of fuel.

We must dismiss the popular notion that the corpulent individual gets "more of the goodness of his food" than the average subject. The percentile absorption varies little in health. Again, when we compare basal metabolism in fat and lean men there is no important difference excepting in the thyroid group. So far as muscular work goes we have just seen that the overweight body is not frugal but spendthrift. One peculiarity of the obese constitution does appear to be definitely established. This is a subnormal response to feeding, a slight instead of a marked rise of oxidation following a meal. More specifically, the failure is observed when the food has been rich in protein.

Nitrogenous food is generally found to have the effect of speeding up the breakdown of the body reserves. When for some obscure reason it does not do this there must be a tendency to store fat even when the ration is moderate as judged by ordinary standards. We have to consider that if the balance of income and outgo is at all disturbed a very small daily addition to the body leads in the course of a year to a surprisingly large gain. Adiposity once established makes active exercise so unpleasant that the condition is seldom corrected by working off the accumulation. The problem remains as always, to reduce the intake of food without inducing a state of great discomfort and depression.

Reflex Muscle Contractions. Sir Charles S. Sherrington and his associates at Oxford continue to demonstrate facts of interest concerning reflex activity. In a recent report[6] emphasis is placed upon the following observation. When a given muscle can be made to respond reflexly to the stimulation of any one of a number of sensory nerves it is quite unusual for the full power of contraction to be elicited by the employment of a single afferent path. What we call the spinal center for such a muscle is evidently not strictly unified; it is in some degree diffuse. Therefore it is possible to obtain summation effects by stimulating two or more of the afferent strands at the same time.

What we have called the full power of the muscle is that which is developed when its motor nerve is excited adequately. It is found that the tension in this case may endanger the integrity of the parts acted upon. The "factor of safety" which we usually count upon as a feature of the bodily structure is not any too liberal here. The inference is favored that the maximum evolution of force on the part of a muscle

is an abnormal occurrence. We know that athletes may rupture tendons or otherwise injure themselves when making extreme exertions.

Conditions Influencing the Metabolic Rate. Pickworth[7] has made an important contribution along this line. He has undertaken to determine the effect of many factors capable of altering the intensity of the bodily processes. He has observed more definite evidence of the response of the metabolism to mental states than previous workers have generally recorded. The following type of experiment seems significant. A violinist played while exhaling into the Douglas bag. Comparison was made between two periods during one of which the music was easy for the performer while during the other it was difficult. The muscular activity in the two cases was nevertheless equal; the difficulty was a matter of cerebration,—of reading the score and dictating the execution. The metabolism was notably increased when mental concentration was featured.

It may be recalled that in the famous experiments at Wesleyan University upon students taking examinations the metabolism was not definitely greater than when they wrote insignificant lines. Also in Waller's observations on proof-readers there was found to be no change in the metabolism when they fixed their attention upon their work or, later, relaxed it. Why are the facts different for the violinist? The suggestion may be ventured that a kind of excitement is involved which is foreign to the quiet business of reading proof and largely to the writing of an examination. There is probably a widespread tenseness in the muscles of the musician as he strives to render with precision the exacting passage.

Electrical Changes in the Pancreas. The general truth has come to be appreciated that all physiological changes are signalized by disturbances of electrical equilibrium. Such shifts of potential were long studied in muscle and nerve without seeming to have more than an academic interest. More recently they have been held to throw light on the intimate nature of the underlying processes. They have also found practical application as in the electrocardiogram. Glands, like other tissues in functional activity, give electrical signs on their performance. These indications of a secretory process are of particular value in the case of endocrine organs where the objective evidence of discharge is otherwise indirect. They have, for example, afforded indications of a response on the part of the thyroid to sympathetic stimulation.

German and Barr[8] have found that electrical disturbances may be detected in the pancreas when the demand is made for the release of insulin from its cells. It had previously been shown that this hormone could be called out by stimulating the vagus nerve. In the present instance its discharge was evoked by injecting glucose into the circulation. Electrodes were so placed as to bring the pancreas into circuit with a suitable galvanometer. It was then observed that when the concentration of the blood-sugar was increased a definite change in the electrical state of the pancreas usually followed.

The latency of this response was variable. In the majority of cases it was less than 2 minutes. The investigators recognized the necessity of excluding the external secretory activity of the pancreas as a possible source of the manifestation. With this object in view they cannulated the duct and were thus able to note the flow of the juice. They confirmed earlier work in showing that when the preparation known as secretin is injected into a vein there is a discharge of juice and an electrical fluctuation. The injection of glucose does not call forth the external secretion. It is natural to infer that the electrical effect is in this case expressive of changes localized in the islet tissue.

Radiation. The literature of this subject is rapidly increasing. The discovery that the rays of short wave-length can do much to prevent and correct rickets has been followed by the demonstration that they can modify the nutritive value of certain foods. Attention may be called to an observation of Azuma[9] which shows in a striking way how positive a form of energy is here represented. When ultra-violet rays are concentrated upon a thin muscle, such as the sartorius of a frog, the response is an intense contraction. This leads to the prompt death of the muscle which is said to pass into "light rigor." Ionized calcium is reported to be requisite to this reaction, a fact which may stand in some relation to the interaction of the rays with calcium metabolism in rickets.

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Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 14041

GASTRIC PAIN WITH CONSTIPATION

MEDICAL DEPARTMENT

An American chiropodist seventy years old came to the Emergency Ward September 21 complaining of constipation and pain in the stomach. He frequently contradicated himself in answering leading questions. The history is entirely unreliable.

For eight years he had had "indigestion"—chiefly constipation. He had had much gas and occasionally slight generalized abdominal pain, worse after eating and relieved by defecation. All these symptoms had tended to get a little worse. Eight weeks before admission his real illness began—increased constipation and much more severe generalized dull abdominal pain occurring daily, aggravated by food, often waking him at night and continuing until relieved by defecation. He had been constantly nauseated and vomited several times a week, usually several hours after eating. The vomitus was very sour, often filled a wash basin, and contained, he thought, food eaten several hours earlier. Five weeks before admission he stopped work because it aggravated the pain and he became very weak and dizzy. August 19 X-ray examination in the Out-Patient Department of this Hospital showed a lesion at the outlet of the stomach with complete obstruction. The stomach contained so much food residue and secretion that the outline of its contour was impossible to determine. He thought he had passed several tarry stools in the past few weeks. He was given a letter of admission to the wards September 30. He had grown steadily weaker and had lost 30 pounds in seven or eight weeks. The constipation and abdominal pain had grown worse. He now came to the hospital at the advice of his physician, who had grown tired of waiting until September 30.

His family history is good.

He had always been fairly well. He had scarlet fever in childhood. Nineteen years before admission examination in the Out-Patient Throat Department showed perforation of the septum, possibly traumatic. He gave a past history of nasal catarrh for many years. He had occasionally very slight edema. Two months and a half before admission a lump appeared in the left side of his neck. In August, a month before admission, examination in the Out-Patient Department showed a small pea-sized lesion on the inner surface of the lower lip and a swelling under the jaw and in the neck. There was a mass the size of a small plum in the left side of the neck, hard and freely movable. Wassermann negative. He had some loss of memory. During the past few years his usual weight had been 190 or 200 pounds; his present weight was 160 (?).

Clinical examination showed a cachectic, dehydrated, pale, very weak old man, mentally disoriented. The nasal septum was absent. There was purulent secretion. A large hard gland the size of a pigeon's egg, not tender, under the lower third of the sternoclavicular muscle. A pea-sized gland, not tender, in the left submaxillary region. Apex impulse of the heart not seen or felt. No enlargement to percussion. Sounds distant. Artery walls moderately thickened. Blood pressure 140/100. Abdomen scaphoid. No masses. Rectal examination, genitals, extremities and pupils normal.

Amount of urine recorded only once, then normal, specific gravity 1.020 to 1.025, urine alkaline at one of three examinations, no albumin, one or two leucocytes at two of three sediment examinations, one or two red cells twice. Blood normal. Wassermann negative. Nonprotein nitrogen 40 milligrams. Vomitus; guaiac very strongly positive.

Temperature 97° by mouth to 100.9° by rectum, pulse 71 to 119, respirations 19 to 29.

The patient was in too poor condition for operation. By September 25 he was irrational at all times and refused food and water. He was given subpectoral fluids and fluids through a stomach tube. The temperature steadily rose. September 25 he died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

"The history is entirely unreliable". Probably our diagnostic inferences will be equally unreliable.

The X-ray taken in the Out-Patient Department before admission to the wards shows no trace of a pyloric sphincter or gas. It looks like a dilated stomach, although there is rather more peristalsis than I should suppose you would get.

NOTES ON THE PHYSICAL EXAMINATION

Perforated nasal septum we always suspect of being syphilitic, but it may be traumatic, as they have said here. We have to remember that.

We should like to know where that edema was.

That mass in the neck sounds like malignant disease.

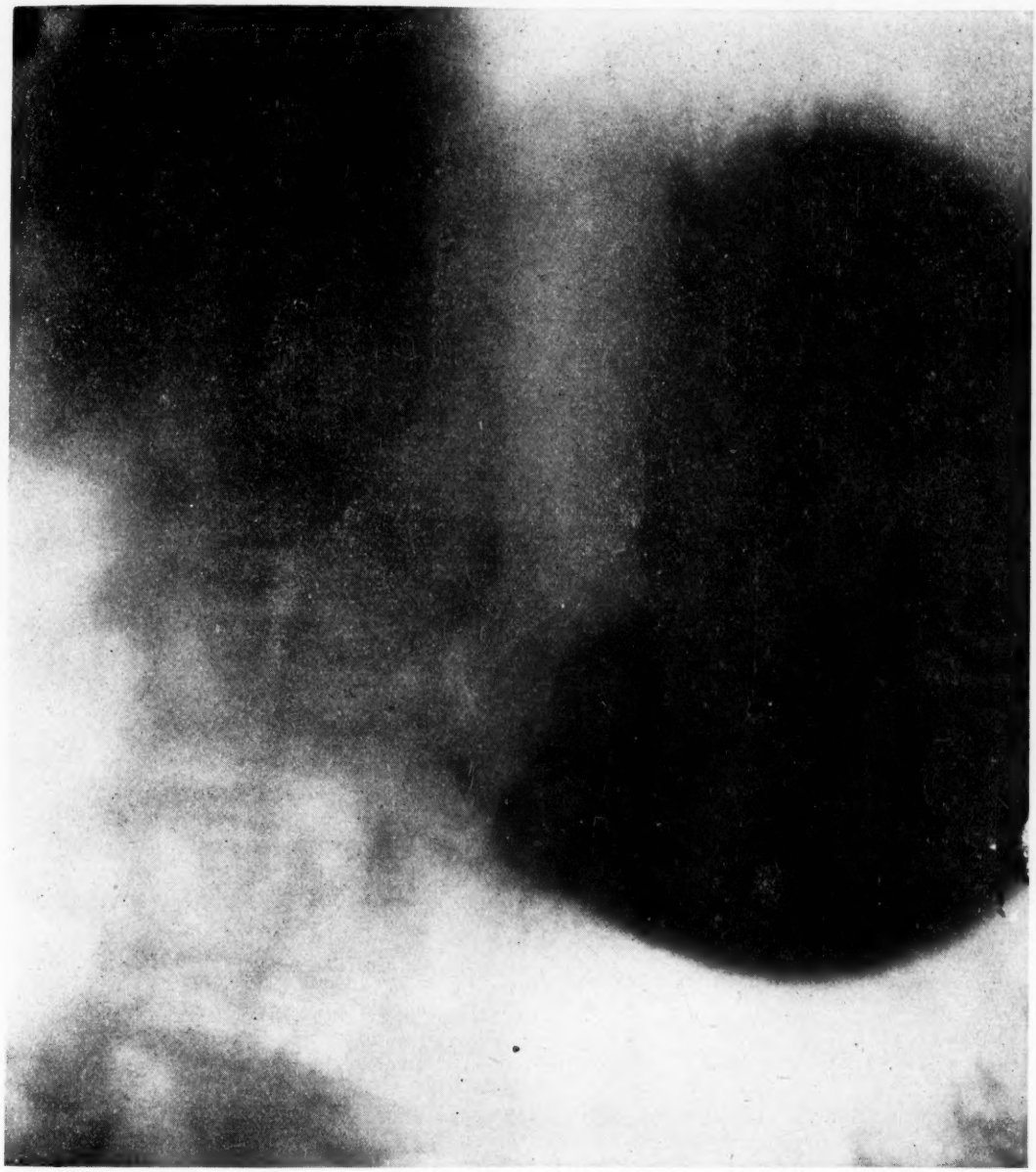
It is a little surprising that they did not find anything in the region of the stomach or pylorus.

"Wassermann negative." That is rather important in relation to the septum perforation.

that. I should say we need not consider it.

A STUDENT: Could it not be a gumma of the stomach?

DR. CABOT: We do get syphilis of the stomach. So far as I know it never causes an ob-



Taken August 19, a month before admission. Shows a lesion at the outlet of the stomach with complete obstruction. The stomach contains so much food residue and secretion that the outline of its contour is impossible to determine. The plate is defaced.

DIFFERENTIAL DIAGNOSIS

The danger confronting us here is rather the opposite of many cases in which everything is obscure. Here the danger is of overconfidence. Everything seems to point one way. Cancer of the stomach is the probable diagnosis here. What else could it be?

A STUDENT: Tuberculosis of the stomach.

DR. CABOT: I do not know anything about structive pyloric lesion. The cases I have seen have been very diffuse lesions over a large portion of the stomach, not confined to the pylorus. I do not believe there is such a thing as gumma obstructing the pylorus.

A STUDENT: How about ulcer?

DR. CABOT: That is the only other diagnosis which we ought to consider seriously. We see obstructing pyloric lesions from ulcer. We must

therefore see what points there are against that. (1) The first point is the age. This began at sixty-two. I do not believe he had cancer all those eight years, if it is cancer. But the type of indigestion described is not the type you usually see with ulcer. (2) We have no evidence of perforation or hemorrhage. People do not die from ulcer unless it perforates or there is hemorrhage. This man died. (3) The most positive thing against ulcer is the gland in the neck. If it had been there for some length of time it might not have been so significant. But this gland has appeared under our observation and it shows the ordinary characteristics of a metastasis. I believe it is a metastasis.

A STUDENT: How about the pea-sized nodule on his lip?

DR. CABOT: I do not know about that. There is not enough said to make it clear to me.

A STUDENT: Is it possible he had some sort of primary anemia? He had blood in his vomitus and his stools.

DR. CABOT: But how would that account for his pyloric lesion?

A STUDENT: Would not anemia be a natural result of cancer of the stomach? He does not show any evidence of anemia at all.

A STUDENT: He had dehydration; that would account for its absence.

DR. CABOT: Yes, that is a good explanation. But not all cases of gastric cancer show an anemia even when there is no dehydration.

I do not see that anything is said about his stomach contents. The fact favors the diagnosis of cancer. I suppose he was too sick to bear the examination.

A STUDENT: Is it not rare to have carcinoma of the stomach metastasizing in the neck?

DR. CABOT: No.

A STUDENT: This could not be secondary in the stomach from a growth in the nasal septum?

DR. CABOT: I think not. I think we would get more evidence in the nasal septum in the way of neoplasm.

A STUDENT: If it is cancer of the stomach how does that explain the relief of pain by defecation?

DR. CABOT: It does not, of course. But you can suppose that besides cancer of the stomach he had constipation.

A STUDENT: Would you expect to get generalized abdominal pain from constipation?

DR. CABOT: Yes, that is the general expression of it.

A STUDENT: Is there any danger in passing a stomach tube?

DR. CABOT: There is always a possibility of putting a stomach tube through the gastric wall. I have known it to happen. They did not take that chance here.

A STUDENT: Isn't it queer that they did not palpate a mass in the stomach if he had metastases?

DR. CABOT: Yes, I think it is queer, but I do not think it should upset the diagnosis. We always have several queer things in a well studied case.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the stomach.

DR. RICHARD C. CABOT'S DIAGNOSIS

Cancer of the stomach.

ANATOMIC DIAGNOSES

"Colloid" carcinoma of the stomach.
Bronchopneumonia.
Arteriosclerosis of aorta and coronary arteries.

DR. TRACY B. MALLORY: This was a case of cancer of the stomach. It is very interesting histologically. There was an annular tumor at the pylorus, almost completely occluding it. Frozen sections made from the tumor at the time of the necropsy showed much fibrosis and very few cells you could definitely say were epithelial. Scattered in between the bands of fibrous tissue were some small cells with large vacuoles apparently containing mucus. They might have been either phagocytes or epithelial cells with mucous droplets in them. As a matter of fact this type of carcinoma of the stomach is not infrequent. If enough sections are cut, one usually finds that there are a few areas of definite adenocarcinoma of the colloid type. It is our impression here that many of the so-called cases of syphilis of the stomach are really this type of carcinoma in which the epithelial elements are apparently killed off almost as soon as they are formed, but if you hunt long enough you almost always find adenocarcinoma. Certainly syphilis of the stomach is one of the rarest diseases there is.

We do not know if the glands in the neck were carcinomatous or not, since we did not have permission to open the neck. There were no local metastases, none in the liver and none in the regional lymph nodes.

CASE 14042

FEVER AND JAUNDICE

MEDICAL DEPARTMENT

A zoölogist twenty-six years old entered September 12, 1897.

September 7 he sailed from Jamaica after a ten weeks' stay. He was unaccustomed to the hot climate and had been more or less run down during the summer and had slept poorly. The day after he sailed he had frontal pain in the head and pain in the back and legs, apparently a high fever, and then profuse perspiration, but no chill. His pulse was 140. The next day he felt better, but had nausea and considerable per-

spiration all day. He had taken thirty to forty grains of quinine daily since September 8. His ears were still ringing. September 10 to 12 he was better, although he had some nausea and vomiting nearly every day. He had several loose movements daily and considerable gas. His appetite had been poor. He had had no fever since September 8.

His father died of consumption.

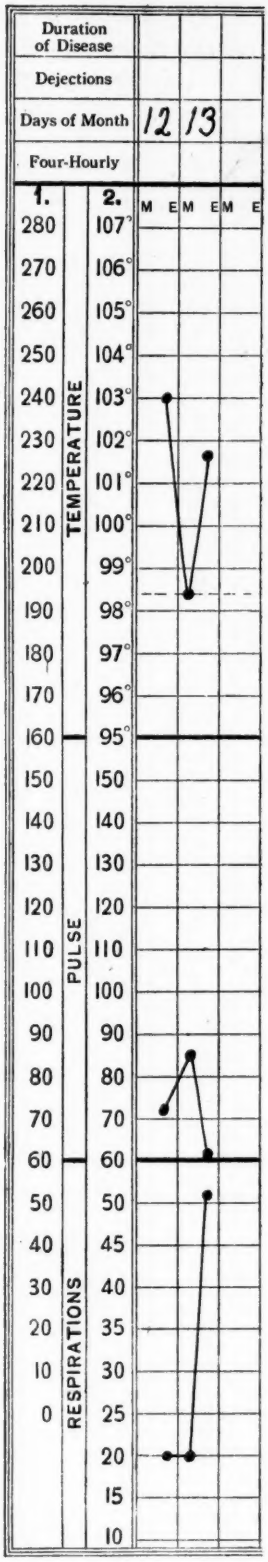
He had had the diseases of childhood, including scarlet fever. He had had malaria (?) five years before admission and malarial fever for one day last July. He had occasional headaches. He usually took no alcohol.

Clinical examination showed a well nourished man who seemed somewhat dazed and was quite deaf. The upper part of the chest front and back was thickly spread with hyperemic papules, some of them surmounted by vesicles which looked somewhat cloudy. There were a few papules over the abdomen. Some gurgling was heard throughout. The splenic dullness was one inch above the costal border. There was no tenderness.

Amount of urine not recorded, urine dark, specific gravity 1.016, a large trace of albumin, bile present, a few leukocytes, granular and hyalin casts, some with fat adherent, a few cells on casts, little free fat, rarely an abnormal blood corpuscle. Blood: 7,800 leukocytes, hemoglobin 92 per cent., no malaria parasites at two examinations. Serum reaction not obtained.

The temperature, pulse and respirations are shown in the chart.

The night after admission the patient vomited once. There was slight cyanosis. At seven o'clock the next morning he said he had not felt so well in months, had no ringing in the ears and no pain anywhere. An hour later, however, after answering one or two questions he could scarcely be roused. The skin and sclerae now showed jaundice. This had followed a fall in temperature to normal. Two hours later he could not be roused at all and was more cyanosed. There were clonic contractions of the jaw muscles. He was unable to swallow. The arms and legs were somewhat stiffened. The condition grew steadily worse. There was a fibrillary tumor of the chest muscles. The pupils later were contracted and did not react. The liver dullness, which the previous night seemed to extend to the costal border, was now from the fourth to the seventh rib. Late in the afternoon there was Cheyne-Stokes respiration. Strychnia had no effect. He continued to have vomiting and diarrhea. One movement contained a little blood. During the day there were some blood streaks in the vomitus, perhaps from the throat. The tongue was ecchymosed where it was bitten and the ear somewhat ecchymosed where blood had been taken for examination. In the course of the day the jaundice became more marked. A friend reported that the patient was not yellow September 12, although his urine was very high colored. The liver was



at the costal border. The spleen was not much enlarged.

The cyanosis became more marked. The afternoon of September 13 the patient died. Al-

most immediately after death the head drew back and muscular rigidity set in.

Discussion

BY GEORGE C. SHATTUCK, M.D.

The history of this case points certainly to acute infection. I have not read the necropsy report, but it has been hinted to me that this might be a case of yellow fever. If we are to make that diagnosis we must first of all do what we can to exclude malaria, spirochetal jaundice and dengue.

It is very difficult on the evidence presented here to exclude malaria. A negative blood examination after the taking of quinine for several days would have no diagnostic value. The leukocyte count is normal. One might expect leukopenia with an excess of large mononuclears in malaria. This does not occur so regularly in the early stages as in the later stages of malaria. His fever has evidently been of an irregular character, with sudden onset and apparently a remission and a recurrence of fever on admission to the hospital. That would go well enough with malaria. Toward the end of the examination the spleen is said not to have been much enlarged. An enlarged spleen goes well with most forms of malaria, but it is by no means constant with aestivo-autumnal malaria. On the other hand it is not expected in yellow fever. Malaria might perhaps have been excluded by splenic puncture and examination of the smear from the spleen, if there had been no pigment and no malarial plasmodia found. The rash that the patient had was atypical and does not associate itself with malaria. It is difficult to classify. An important point against malaria is the failure of quinine to control the fever. On the other hand there was vomiting, and we do not known how much quinine was absorbed. It does not seem that on the evidence given we can with certainty exclude malaria.

We might then take dengue. The sudden onset, the remission of temperature, the headache and chilly sensations all go well enough with that. I find no mention of severe pains in the back and legs which are so common with dengue. They are also common with yellow fever. The rash was not like that of dengue, jaundice is rare in dengue and death is unusual.

Spirochetal jaundice is not ordinarily such an acute disease. It is not as a rule characterized by remissions of the fever. It is not however a disease with which I am to any extent familiar, and I should not be able with certainty to exclude it on the evidence given. The urine seems not to have been examined for spirochetes.

I will then turn to the possibility of yellow fever in this case. This patient came from Jamaica in 1897, before the time when the mode of transmission of yellow fever was known, and when yellow fever was very prevalent in the West Indies. The disease is characterized by sudden onset as in this case. It frequently shows remissions of temperature after the second or third day of the disease and exacerbations of fever later on. It is a disease which is often rapidly fatal, sometimes within a very few days, generally within ten or eleven days. The deaths in the earlier period are from overwhelming toxemia. Those in the later stage are apt to be associated with uremia, kidney changes being common in yellow fever and urine being scanty when the kidney has been much damaged. Jaundice goes very well with yellow fever and is rare in dengue. Some of the other more characteristic features of yellow fever such as the marked flushing of the face and injection of the eyes which one looks for in the earlier days of the disease are not recorded as having been present. However, the patient was not in hospital at the time and we cannot trust much to hearsay for the early signs. The frontal headache in the beginning and the vomiting go well with yellow fever. The profuse perspiration is common, although a dry skin is perhaps more frequent. One important point here is the pulse rate. At the onset the pulse rate was 140. One of the features one looks for in yellow fever is continued high or rising temperature associated with a falling pulse. In other words, in yellow fever after a few days a marked discrepancy between pulse rate and temperature develops. The chart on the last days shows a pulse ranging between 88 and 60 with a temperature ranging in the same interval from 103° to 101.6°. The highest dot on the temperature curve is associated with the lowest in the pulse record. The pulse clearly shows a tendency to fall lower than one would expect it to fall with a temperature of that sort. That would go well with a diagnosis of yellow fever. The skin manifestations of yellow fever are in no way characteristic. Rashes of various kinds are found. That which the patient had would not be inconsistent. The vomiting in yellow fever is characteristically black from the presence of blood pigment. Jaundice generally develops after a few days and bile may appear in the urine. Marked albuminuria is expected. On the whole the diagnosis of yellow fever seems the most probable in this case.

Dr. Edward L. Young: Is immediate muscular rigidity characteristic of yellow fever?

Dr. Shattuck: Rigor mortis is marked in death from yellow fever. The albuminuria would go well with yellow fever. One of the features of yellow fever is that albuminuria begins very early in the disease.

Dr. Cabot: Is there more albuminuria than in other infections?

Dr. Shattuck: Yes, there are large amounts of albumin in the urine in yellow fever.

Dr. Cabot: Will you say something as to the present occurrence of yellow fever in different parts of the world?

Dr. Shattuck: In the past yellow fever has been widely endemic along the coast of South America, throughout the West Indies, in Cen-

tral America and in Mexico. It has frequently invaded the seaports of this country. Severe epidemics of yellow fever developed in Atlantic ports during the eighteenth and nineteenth centuries. In 1793 there was a very bad epidemic in Philadelphia in which the mortality was nearly 10 per cent. of the population. There have been epidemics also in Boston, Providence and Newburyport and in some of the other New England seaports. We find yellow fever fairly common to-day on the west coast of Africa, and it occasionally appears in parts of northern Brazil. It no longer extends up the Amazon valley as it formerly did. The last Central American outbreak of yellow fever, according to U. S. Public Health Reports Vol. 40 Pt. 1, p. 582, occurred in San Salvador in 1924. There were 77 cases and 28 recorded deaths,

There is some question whether yellow fever in Africa is the same as that in this country and whether it originated in Africa or in this country. The usual opinion is that the disease is the same in Africa as it is here and that it originated in Africa. Apparently it is showing a tendency to spread in Africa toward the interior where formerly it was confined pretty much to the coast. It is curious that in Africa there have not been any severe and widespread epidemics of yellow fever such as have occurred on this side of the Atlantic. There was a small epidemic recently in Monrovia in Liberia with eight deaths. A great deal of work on yellow fever has been done in Lagos on the coast of Nigeria, where there is a laboratory which has been financed by the Rockefeller funds. The British also have a laboratory at Lagos. Dr. Adrian Stokes, a well-known and very able Irish pathologist, recently died in Lagos while working on the transmission of yellow fever to monkeys.

The etiology of yellow fever is now again in doubt. In 1901 mosquito transmission was demonstrated by Reed and his associates. A few years ago the work of Noguchi indicated that *Leptospira icteroides* was the cause of yellow fever. A few however continued to doubt. The recent work of Drs. Sellards, Theiler, and Gay in the Department of Tropical Medicine of the Harvard Medical School threw grave doubts upon the validity of Noguchi's conclusions. Theiler was unable to distinguish *Leptospira icteroides* from *Leptospira icterohaemorrhagiae*, and Sellards stated that *Leptospira* is not the cause of yellow fever.

The still more recent work of Professor Oskar Klotz of Toronto, who was sent by the Rockefeller Institute to study the yellow fever of West Africa, materially strengthens the view of Sellards.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Yellow fever.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion.*

Yellow fever.

2. *Secondary or terminal lesions.*

Extensive fatty metamorphosis of the liver.
Fatty degeneration of the liver cells.
Icterus.
Acute lymphadenitis of mesenteric lymph glands.
Edema and congestion of the lungs.
Acute degeneration of the kidneys with some fatty degeneration of cells.

3. *Historical landmarks.*

Old pleural adhesions.

DR. TRACY B. MALLORY: The anatomical findings in this case are those ordinarily found in yellow fever and were considered by Dr. Councilman at the time as entirely characteristic and as confirming the diagnosis. There was a very slight degree of jaundice evident post mortem. The head and brain were negative. The chest contents were entirely negative. The liver was somewhat small, weighing 1,057 grams. Yellow and red mottling was visible through the liver capsule. On section this was still more evident. Microscopic examination showed it to be due to very extensive degeneration of liver cells with the appearance of large amounts of fat. A similar type of degeneration was found in the kidney tubules. The glomeruli were negative. No lesions were found in the intestinal tract or stomach. Very extensive bacteriological work was done, yielding, as might have been expected, negative results.

DR. CABOT: Could you say that this pathological picture is all in the liver and kidneys?

DR. MALLORY: I believe hemorrhagic erosions and hemorrhages of the stomach are fairly usual, are they not, Dr. Shattuck?

DR. SHATTUCK: Yes, they are fairly common.

DR. CABOT: In the liver and kidneys there is nothing that does not occur in other diseases. Is it the association with an acute infection that makes one able to say that this is yellow fever?

DR. MALLORY: I know so little about yellow fever I should not like to say.

DR. RICHARD B. KING: Is the jaundice always hemolytic?

DR. SHATTUCK: At the beginning it is always hemolytic. Later there is liver damage.

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EARLY DIAGNOSIS

WE are living in an age of slogans. The public conscience is constantly being pricked by a rapid succession of reminders that it ought to do something about something. Fire prevention week is followed by paint up and clean up week, and paint up and clean up week by health examination week. Then, in close order, may come buy a home week; turn-in-the-old-car week; see the world by trolley week; take a bath a week week, and so forth. In fact, so great is the amount of approximately free advice being given, that we are in great danger of becoming calloused to these insidious reminders and neglecting some of the opportunities for personal or civic betterment that are thundering at our gates.

In more serious vein, however, it is salutary that the attention of both medical profession and laity is being constantly turned towards the necessity, in medicine, of early and accurate diagnosis. The periodic health examination may have been a bit overdone, as the professional boosters, in their enthusiasm, are apt to overdo things, but it cannot be denied that very often the equation, early diagnosis + early treatment = cure is a correct one.

This rule frequently obtains in all departments of medicine; as regards tuberculosis and cancer, which are now occupying so much of our attention, it is singularly true. With these diseases, one of which still bulks so large as a cause of sickness and death; the other of which is becoming increasingly prevalent, early diagnosis is the one most important factor in their control.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS

SINCE the time of Detweiler, there has been a constantly increasing tendency to prescribe longer and more complete rest in the treatment of pulmonary tuberculosis, and rest is now regarded as the most important single therapeutic measure in promoting an arrest of the disease. Benefit from rest encouraged the successful application of artificial pneumothorax. This, in turn, led to the trial of surgical collapse when pleural adhesions prevented the use of the artificial pneumothorax. The development of operative procedures has progressed rapidly during recent years and favorable results have been reported in large series of cases by European surgeons after extra-pleural thoracoplasty. An appropriate selection of patients for operation is an important factor in successful surgery.

Dr. Edward W. Archibald, Professor of Surgery at McGill University, Montreal, has been especially interested for more than a dozen years in the surgical treatment of certain forms of pulmonary tuberculosis, has had a large experience in thoracoplastic operations and is qualified to speak with authority on "The Selection of Patients for Surgical Treatment in Pulmonary Tuberculosis."

A cordial invitation to hear him at the meeting of the Trudeau Society in John Ware Hall, Boston Medical Library, Wednesday evening, March 21, is extended to physicians, medical students and nurses.

INFORMING THE PUBLIC

IN a recent issue of the *Boston Herald* under the caption Advertise the Law appeared part of an address delivered at a recent meeting of the Cincinnati Bar Association by Paul T. Cherington. Formerly a Professor in the Harvard School of Business Administration, prominent in civic matters, he is now director of research for the J. Walter Thompson Advertising Company.

In speaking of the public distrust of lawyers he quotes the following remarks of Charles R. Holden, president of the Chicago crime commission before the American Bar Association in 1925: "The ministry, the teaching profession,

even the medical profession have in our present condition of public opinion steadily lost ground in the last twenty years." Cherington remarks that "the greater learning, the more exacting code of ethics, the many helpful contributions made to public and private life have not offset some influence at work making the public reluctant to give lawyers the full measure of confidence their accomplishments seem to merit."

As one remedy for that part of the public distrust which is unreasonable Professor Cherington suggests the influence of the advertising as well as the reading columns of the daily press. He adds,—"For the advertising lawyer in the ordinary sense of one advertising his own professional skill, disapproval and contempt are merited, and usually are swiftly administered. But this practice denied to the individual lawyer, may be found to have a real mission for the profession as a whole."

After pointing out the changes which paid advertising has brought about in food, clothing, business and personal habits, Cherington asks, "What ethical or practical reasons can there be against its use in setting up a better understanding of the law and its place in life?"

Professor Cherington enumerates a dozen specific matters in which legal reform depends upon enlightened public opinion. He adds that if "The legal profession finds itself in a position where either a knowledge of advertising technique or of the processes underlying the influencing of public opinion through advertising would be of service—I am confident that they would find the members of the advertising craft ready to give them any assistance in their power."

The situation of the medical profession is similar in many ways to that of the lawyers. After making all due allowance for the fact that Professor Cherington's work is advertising, does not his article suggest methods of informing the public which may well be considered by the various committees of the Massachusetts Medical Society?

SCHOOLS OF CHIROPRACTIC AND NATUROPATHY

Dr. N. P. Colwell, Secretary of The Council on Medical Education and Hospitals of the A. M. A., has forwarded a report of a series of inspections of irregular borderline institutions professing to offer courses for those who are to practice the healing art.

This is a very important document a copy of which appears on page 218 and contains information which is now available for those who may need to know the facts.

Dr. Colwell is now able to furnish further information relating to irregular medical institutions and he and the Council are to be congratulated for this important contribution to the record of existing institutions of this class.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Gargle, S. L. M.D. Tufts College Medical School, 1925. Interne, Medical Division, Boston City Hospital—July 1925 to March 1927; Assistant Physician at Thorndike Memorial Laboratory of the Boston City Hospital. Address: Boston City Hospital. Associated with him are:

Gilligan, Dorothy R. B.S., M.S. Assistant to Dr. Blumgart. Address: Boston City Hospital. And

Blumgart, H. L. B.S., M.D. Harvard, 1921. Faculty Instructor in Medicine, Harvard Medical School; Assistant, Thorndike Memorial Laboratory, Boston City Hospital. Address: Boston City Hospital. Their subject is: "The Antidiuretic Effect of the Oxytocic and Pressor Principles of the Extract of the Posterior Lobe of the Pituitary". Page 169.

Reid, William D. A.B., M.D. Harvard 1909. Assistant Professor Cardiology, Boston University School of Medicine; Associate in Evans Memorial Hospital. Address: 510 Commonwealth Avenue, Boston. Associated with him is:

Kenway, Florence L. B.S., M.S. Research Assistant, Evans Memorial Hospital. Address: 80 E. Concord Street, Boston. Their subject is: "The Value of the Electrocardiogram in Acute Rheumatic Fever". Page 177.

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O'Brien, Thomas J. Ph.G., M.D. Harvard Medical School, 1899. Associate Professor of Medicine, Tufts College Medical School; Assistant Visiting Physician to the Boston City Hospital; Vice-President of the Massachusetts Medical Society. Address: 501 Beacon Street, Boston. Associated with him is:

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THE SECOND REPORT OF THE COMMISSION ON MEDICAL EDUCATION

THE Second Report of the Commission on Medical Education has been published as of January, 1928. It represents a continuation of the assembling of data and opinions bearing on various phases of medical training.

The Commission, it will be recalled, includes university presidents and other educational administrators, medical educators and representatives of State boards of licensure. Their purpose is to survey the whole field of medical education, including the preparatory years, comprehending general education as well as specific "premedical" courses of study; and since the physician is to be always a student, the period of medical practice after leaving school is given special consideration.

Certain obviously important problems emerging in this field are to be studied intensively, and extensive compilations of data and opinion will be considered as throwing light on problems now formulated or as leading to the formulation of new problems.

The present report comprises five chapters of data and opinions, with a Summary and six appendices containing more detailed information than is included in the text.

The first chapter contains certain facts regarding the type of practice, and previous training, as in college and medical school and hospital, of sixteen hundred successful physicians from four hundred communities, and the opinions of these physicians as to some of the elements in medical education. It is specifically stated in the Foreword that the Commission has arrived at no conclusion and it would be well to suggest that readers of the report be equally cautious and abstain from drawing conclusions from the figures presented. What the figures mean, if they mean anything at all beyond what they say on the surface, is not pointed out. The background against which their meaning may appear is not even hinted at. Yet something might have been added to advantage. An example is found on page 9 of the Report. The physicians are divided into three groups on the basis of the year of their graduation in medicine. Why three groups, and why "previous to 1900", "1901 to 1910" and "1911 or later"? It is shown that twenty per cent. of those graduating in 1900 or before, had a four year medical course. If the year for this group had been put back, so as to exclude all with a four year medical course, a better basis for induction would appear. Why is 1910 chosen for the end of the second group? That year represents no essential change in educational procedure. However important the Carnegie Report by Abraham Flexner proved to be later, no formal change in medical education was made in that year. It was in 1914 that one year of premedical study in college was required, and in 1918 that two years were required as a minimum for all Class A Medical Schools. Yet these significant dates do not appear in the grouping.

An interesting light might be thrown on the subject if the amount of work done by these successful practitioners was compared with the minimum requirements at the time of their study in the matter of premedical work. Now the minimum premedical requirements are two years for most schools, representing far more than a majority of medical graduates each year. Yet among medical graduates each year there is a steadily increasing majority who have received the baccalaureate degree in arts or science. Why do the students voluntarily take so much more than the minimum if the minimum is, as some claim, too great?

The summary of the chapter on the data and opinions of successful practitioners closes with this noteworthy sentence. "The most frequently mentioned elements (which contribute to professional success) are character, personality, industry, training and constant study". It would be well to bring this testimony to the attention of those planning to study medicine.

The second chapter is a Further Study of the Demands on Medical Practitioners, and "in a general way, this and previous studies of the demands for medical service substantiate the common opinions that a rather larger proportion of practice is confined to a relatively few diseases either in general practice or in special practice. It is clear from these studies, however, that in general practice, physicians should be qualified to recognize serious conditions in their incipient stages, such as cardio-renal, malignant and tuberculous diseases, for examples, and that general practitioners should be prompt to see that patients suffering from some of these diseases should have attention from those who are qualified by special preparation to deal with them".

The chapter on Data and Opinions of the

State Medical Boards contains a paragraph which points out what some regard as one of the most significant tendencies in the medical boards of today. "Evidently the opinion is growing among state medical boards that the examinations for licensing should be confined largely to the various branches of clinical medicine, exclusive of the technical features of operative surgery and other details of specialized practice and that examinations to test the qualifications of the individual to begin the practice of medicine, should be in the nature of general comprehensive examinations which may well include the practical application of the basic sciences in medical practice. If such an attitude is to prevail it would naturally be assumed that the State Boards would concern themselves more with the educational preparation of the student and with the quality of the work done by the schools in which these students take their courses".

The correlation between quality of work in college and medical school is now being studied in a number of institutions, but no definite data are available on this question. But Appendix C gives some interesting opinions which, in general, suggest that the correlation may be high.

In Appendix D are given some figures on the colleges which prepare most of the students for the study of medicine.

The most interesting chapter in the Report is the Summary. (Chapter VI) which does not lend itself to further condensation. In spite of its title it goes far beyond the contents of this as well as of the Preliminary Report of January, 1927, and indicates something of the wide scope of this enquiry now in its third year. It is to be recommended for careful reading to every physician as well as to lay persons interested in medical education.

The Summary which is found in chapter six sets forth the conclusion of the Commission and is herewith reproduced:

A review of the data and opinions regarding medical education in the United States and Canada indicates that a large majority of physicians and educators who are familiar with the problem are evidently of the opinion that the general features of present medical training compare favorably with those in other fields of education and that very great improvement has occurred in recent years. It is true that only a few medical schools have been able to approximate the highest standards in every detail. It is also evident that medical education is held responsible by some for many of the inadequacies of medical service and practice and for the shortcomings of individual physicians, in which medical education is usually a minor factor. Moreover, since medical education is largely built upon general education, some of the defects charged to it are traceable to faults of earlier training.

Most of the medical schools have adopted uniform minimal standards of education, but above these minimal requirements are many features of unevenness and often wide differences among the medical schools in buildings, equipment, financial support, student body, teaching personnel, hospital facilities and educational policies. This is probably desirable to the extent that it introduces variety in medical training and meets different needs, but in many instances it points to serious handicaps under which some of the schools labor. A number of defects in the program of training are recognized and are engaging the attention of the profession, the universities, the medical faculties and the state medical boards.

Efforts have been made to bring and to keep medical education abreast of the enormous growth of knowledge of disease, of methods of diagnosis, treatment and prevention and of the sciences upon which medicine is dependent. These efforts have resulted in numerous regulations by educational, medical and legal agencies. It is generally agreed that these regulations have been important factors in the marked improvement in medical training and in the elimination of many medical schools of low standard. They have become so detailed and rigid, however, that they hamper rather than assist further improvement and are responsible for some of the present defects in medical training, particularly those relating to over-regulation, over-crowding and rigidity. The opinion is growing that there should be a modification of these regulations to permit reasonable freedom and further growth of medical training along sound educational and scientific lines.

The regulations which have probably been most important in the improvement of medical education and which are large factors in the present rigidity and over-crowding are the requirements of each state for medical licensure. The splendid spirit of coöperation between those charged with the responsibility for medical licensure and those conducting medical education promises to correct satisfactorily some of the present difficulties.

REQUIREMENTS FOR MEDICAL LICENSURE

The primary function of medical licensure is to determine the fitness of the individual to practice medicine. It is generally appreciated that the chief factors which determine that fitness are the character, industry and ability of those who study medicine and the character of the medical training. It is further recognized that medical training is an educational procedure and should, within reasonable limits, be conducted by the medical schools without undue regulation of the details by outside agencies. The opinion is rapidly growing that some modifications in the functions of the state medical boards and in their methods of examination should be made. The suggestion has been made by some observers that they should confine their function to the approval of medical schools and the general features of medical training, leaving the details of curriculum and method of instruction to the medical school authorities, and that they should conduct only comprehensive examinations in the various major branches of clinical medicine, not in details of the basic sciences except as they relate to clinical medicine or in the technical aspects of the various medical and surgical specialties. It is fully appreciated by those who have these proposals in mind that the suggested type of examinations would be given only to graduates of the schools approved by the respective state medical boards and that they should reserve full right to conduct examinations in the basic sciences in those instances where they thought it advisable.

Some of these suggestions are in operation in part already, for practically all states have regulations covering the educational features of both the medical and pre-medical courses and have exercised discrimination among schools. It is maintained by those who have suggested some of these changes that the states could shift the emphasis of their licensing function without endangering the check which they have

on medical training. The fact that over ninety-five per cent. of graduates of schools which conduct medical training on the generally accepted standards pass the examinations for licensure indicates that the examinations are not the most important factor. It is fully appreciated by those who have these possible changes in mind that many of the regulations have become legal requirements and that in certain states some legislation covering these proposals, if they were accepted, would have to be passed. The passage of basic science laws recently in some of the states which have recognized multiple standards of practice of the healing art and have developed multiple boards of licensure has added some new features to the problem of medical licensure.

The suggestion is made quite frequently that there should be a differential licensure for the practice of major surgery and possibly for some of the specialties. Such suggested licensures would be granted only on the evidence of special graduate training and ability. That there would be great difficulty in administering such a requirement is well recognized. It is maintained by many others, inasmuch as most of the major surgical procedures are carried out in hospitals, that the hospitals are the organizations to decide most satisfactorily the qualifications of the surgeons and other physicians who work in them and that they have a large public responsibility to do so.

Twelve states now require an interneship for licensure to practice and some medical schools require the interneship for the degree of Doctor of Medicine. There is a growing belief that the interneship should be required by all states for licensure, but inasmuch as it is largely an educational procedure, that the character and content should be determined and approved by the medical schools rather than by the state medical boards.

THE MEDICAL COURSE

Medical training is dependent upon general education and some of the difficulties encountered in it are traceable to faults in early education, which are well recognized by those engaged in the fields of primary, secondary and college education. It is probably true that the present system of education in the United States has a distinct tendency to provide a diffused, superficial training for the average student rather than a thorough understanding of any one field, and makes very little provision for the student of unusual promise who may have special interests. Real education can only be acquired through the individual efforts of the student himself and our present system of general education does not ordinarily develop the student in methods of study nor awaken in him serious intellectual interests.

It is generally appreciated that the difficulties confronting general education in this country have been unprecedented, particularly in relation to the enormous growth of the student body, the difficulties of securing trained teachers and proper equipment and the great pressure to provide numerous special and vocational types of training. Similar difficulties have been encountered in higher education and have been responsible in part for the lack of intellectual self-reliance and responsibility on the part of most students. Many of the methods of secondary education have continued into college and university training. There are evidences of a change in the situation through the development of electives, freedom for reading and special work, comprehensive examinations and a growing emphasis upon individual achievement. Although progress is being made despite the difficult circumstances, there is a general consensus of opinion that the quality of education in this country is still considerably below that of a number of European countries. It is probably true that many of the defects found in general education have also been prominent in medical education here and that progress in medical education is partly dependent upon advances in general education.

The various efforts made to establish uniformity in medical education and to put into the medical course teaching in all phases of scientific and medical knowledge have been responsible for great overcrowding. Attempts to correct the difficulty have been largely directed toward rearrangements of the curriculum and reallotment of various subjects and hours. Medical education is a problem of education and in it, as in other forms of education, attention should be directed more to the development of the individual student than to matters of the curriculum. Attempts to establish for all students a uniform time for each subject are obviously unsound. Reacting to this situation, many of the medical schools have inaugurated various forms of free time and elective periods designed primarily to permit greater individualization; to provide more freedom for reading, thinking and leisure; to place upon the student more responsibility for his own training and development; and to encourage more thorough knowledge and real scholarship. That a too free elective system has sources of evil has been fully appreciated also, especially for students who are unaccustomed to independent work. The dangers of superficial and undisciplined training, lack of unity in courses, dissipation of energy and too early endeavors towards specialization have been mentioned by students as well as teachers.

The general objective of medical education for over ninety per cent. of students is an adequate preparation to begin the practice of medicine and a training in sound methods of study which will equip them to continue their self-education throughout their professional life. Every indication points to a modification of our conception of what the basic course in medicine should attempt. The widening fields of medical activity, the development of various technical procedures and the growing emphasis upon early treatment and the preventive aspects of medical practice, make it quite evident that the basic course can not possibly provide a student with an adequate knowledge of all phases of medical science or practice. The amount of knowledge and scientific accomplishment which can be acquired in a reasonable period of training by various types of students, sufficient for preparation to begin independent practice or for special graduate training, is limited. Moreover, knowledge of many factors in disease and health conservation should greatly simplify certain aspects of medical teaching which in the past were subjects for speculation, empiricism, dogma and divisions of opinion. It is becoming more evident that for most students the basic course should be confined primarily to the methods and general principles of the medical sciences and to a sound training in the pertinent fundamentals of general medicine, that body of knowledge which is roughly the common denominator of general and special practice.

Extensive lecturing and operative clinics for large groups are criticized by some, although their use has been greatly reduced. It is the current belief that time can be more profitably spent in reading or in elective work and that lectures should be confined to the general exposition of the principles of given subjects and to suggestive correlation of the various fields of study rather than to the presentation of subject matter.

Another criticism is directed against the methods of presenting subjects, both in the medical sciences and in the clinical courses. It is felt by recent graduates and students particularly, but not infrequently by teachers as well, that subjects are presented too much from the standpoint of the individual interest of the teacher or department, and too much from the aspect of technical details rather than principles. This applies not only to the med-

ical subjects but to the pre-medical college courses also. Many evidently believe that the presentation of subjects should not be made primarily from the standpoint of the individual subject, but more from the point of view of the general interest of the student, and that in the clinical branches there is a tendency to over-emphasize the rare and serious types of illness and to place too little emphasis upon normal health and its conservation as distinguished from disease and its treatment.

The selection of the teaching personnel of medical schools is considered by some to be as important as the selection of students. The vital influence of stimulating teachers who are masters in their individual fields can hardly be over-estimated. In the clinical divisions the responsibilities of the medical teacher are very exacting and demand the highest type of clinical ability, familiarity with problems of medical practice and health needs, capacity for teaching and organization and an active interest in investigation. There is no longer any serious doubt but that these major activities can be carried out satisfactorily only by the employment of the primary interest of considerable numbers of physicians in various capacities. The several major functions of the clinical departments can be carried out most satisfactorily only by a recognition of the primary responsibility for the care of patients and the teaching of medical students in proper methods of medical practice and by liberal financial support for an adequate staff of investigators, teachers, graduate students, clinic workers and other personnel.

Much has been said about the length and cost of medical education. There is an impression that the prescribed training in this country is much longer than in other countries, but so far as the minimal requirements are concerned such is not the case. Efforts to provide an educational foundation for medicine in this country have been recent, but the minimal requirements to-day are approximately those of other civilized countries, in none of which the economic conditions are as satisfactory. It is true, however, that the average age at which graduates are prepared to begin their life work is higher than elsewhere. Several factors operate to make this situation, some of which are not controllable by medical schools. The elementary and secondary schools and the colleges do not develop the student to as advanced a point in training as they do abroad. Many students do not decide upon their professional career until the last year in college or until after graduation, for there is a growing tradition that a college training is the desirable minimum of general education regardless of subsequent specialized training or life work. There are many who believe that the preference given to college graduates for admission to the best medical schools has, for practical purposes, elevated the minimal pre-medical requirements by one or two years. It is stated by those who favor a full college training preliminary to the medical course that the general mental training that comes from a university course is of great value in contributing to intellectual self-reliance and maturity. Others are equally confident that with the development of medical training along sound educational lines, two years of preliminary university work of high quality give sufficient necessary preparation. The number of students with more than the minimal requirements who apply for admission to medical schools is increasing, due to the several factors mentioned. Practically all students take an internship usually from one to two years, and many take further graduate work before beginning practice.

Time could undoubtedly be saved in the primary and secondary schools and in the colleges by the reduction in time required for various subjects and courses, by the elimination of unnecessary vacations and by the stimulation of better scholarship. Probably some time could also be saved if students applying for admission to medical schools were selected more on the basis of individual capacity than on the basis of degrees, courses and grades, which are largely bookkeeping items. In the medical school proper, time saved by the elimination of long vacations and by some reorganization of the present methods of instruction could be used to the great advantage of the student. There is little doubt that efforts in these several directions would make it possible for a student to graduate in medicine earlier than at present and give him opportunity to better round out his preparation by additional hospital, laboratory or clinical experience before entering upon an independent career. Those who favor such changes do so with the idea that a high level of training can be secured through better and more intensive methods and that the time saved can be utilized for further development of the student, and not so much with the thought of shortening the time of training. It is also appreciated by them that these changes can be brought about only gradually and will probably take a period of years to realize.

Many physicians and teachers believe that there is considerable room for improvement in the methods of laboratory teaching, that too much reliance is placed on laboratory work as a method of instruction and that too much time is consumed in the details of unimportant and uninforming routine experiments. No one questions the value of the contributions which have come from laboratory research and that every effort should be directed toward the support and extension of it. It is generally appreciated that the extent to which a proper philosophy of scientific method is acquired by the student during training will determine to a large degree the future level of scientific practice of the physician. It is fully appreciated by all who are familiar with medical practice that much of it is in the nature of investigation and that medical education should be largely concerned with training in the methods of investigation. There are no serious suggestions that vital portions of scientific training be eliminated or that the training be focused alone on practical and immediate problems. There is, however, considerable feeling that an unreasonable amount of time is consumed in meaningless laboratory work as a method of education. The increasing importance and use of laboratory and other devices of accuracy in much of clinical teaching, possibly should modify somewhat the character and extent of similar procedures in the science courses.

A hospital period of training has come to be recognized as an essential part of medical preparation, and a number of states now require an internship for licensure to practice. The greater use of internships has been one of the most important factors in the improvement of medical training. Many educators as well as physicians feel, however, that the educational phase of hospital and out-patient training could be more fully developed. In the hospital organized for the best possible care of its patients, usually for serious and emergency illness and surgery, there is a high degree of subdivision of labor and a large number of special technical services and personnel. The interne is likely to rely too much upon these various services at the expense of his own training. Some are of the opinion that the internship is defective in respect to training in self-reliance and independent judgment, for the diagnosis and treatment of patients in the hospital are largely done by specialists and the interne sees only the more advanced and acute types of illness. It is well recognized that over three-fourths of the medical needs of the community are for relatively minor and early manifestations of disease, usually requiring rather simple treatment, and that many of the

needs of medical practice are of a preventive character. The educational features of the hospital period need to be developed more fully and evidently greater use should be made of the out-patient service for teaching purposes.

PRE-MEDICAL EDUCATION

The minimal pre-medical college requirements, particularly as to courses and time, have been rather rigidly enforced so that at the present time this training is quite uniform in regard to courses, although the quality of work done by students in different colleges varies greatly. As in the medical course, there is considerable criticism of the attempt at standardizing this pre-medical training on the basis of courses and credits and that here, as elsewhere in education, too much emphasis is placed upon mechanical timekeeping. In a general way, the functions of the pre-medical courses are to familiarize the student with the methods of study and the philosophy of scientific effort, to assist in developing a broad cultural background, to acquaint him with the principles of the sciences upon which medicine, in part, is dependent and to encourage the development of independent initiative and intellectual self-reliance. The selection of students for medicine should be based upon the evidence of the extent to which these general accomplishments have been attained and on the basis of the character, personality, industry and promise of the individual.

Mention has been made earlier of the criticism of the length of the medical training. With the large numbers of students now applying for admission to schools of medicine, however, it is not likely that medical schools will lower their prerequisites below a standard on which they can fill their classes. The effect on the probable future number of physicians in the country of the reduction in the number of medical schools and of student body was presented in our preliminary report.*

One of the largest problems in medical practice is that of keeping physicians abreast of new medical knowledge and methods of diagnosis, treatment and prevention. Within recent years, a large number of different devices have been developed to bring current knowledge to medical practitioners. A number of medical schools have taken an active part in the program of post graduate medical training, and forty-one schools for graduate training have been approved by the American Medical Association. The motive back of much of this training has been the desire on the part of many practitioners to get into a limited or nearly limited type of special practice. One of the largest problems of post graduate medical education has been the determination of the qualifications upon which special graduate training should be given, for it is clear that a considerable number of physicians who have been in practice for a period of years are inadequately qualified to take up special training in the short courses that are so frequently provided. Another demand for post graduate work is from those who are already in the specialties and who desire to keep abreast of current developments in their own field. Still another group are those who are in general practice and who desire to familiarize themselves with current accepted methods of laboratory diagnosis and various special forms of treatment. No great problem is presented by the recent medical graduates who, after a hospital or laboratory training, desire to go forward into some special phase of medicine, for the training is merely continued.

There can be little doubt but that properly trained specialists are essential to the modern practice of medicine. In fact, to them must be credited no small part of the advances which have occurred in medical knowledge and practice in recent years. It is recognized, however, that many specialists are self-named; many are not fully trained even in their limited field and still less well equipped in the broad fundamentals of medicine; some are frankly commercial. In spite of the criticisms against individuals, specialism as such is likely to continue to grow, but will gradually become more intimately articulated with the medical needs of the community and more closely coöperative with general medicine and surgery. Current medical knowledge is so enormous that no one individual can possibly master all the technical methods of diagnosis and treatment required by certain patients and a division of labor is inevitable. It is important that the special fields of practice shall not be isolated and self-sufficient and probably this can be accomplished best by having specialized training based only upon a broad foundation of general medical knowledge. It is becoming more fully recognized that the health needs of the public can be met most satisfactorily by a balanced coöperation between physicians trained in and practicing general medicine and specialists whose training has qualified them for certain technical procedures required by some patients.

*Preliminary Report of Commission on Medical Education, January, 1927, Ch. V.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

Foster S. Kellogg, M.D., *Chairman* — Frederick L. Good, M.D., *Secretary*

Frederick J. Lynch, M.D., *Clerk*

Treatment of Leucorrhea, Pruritus and Hemorrhoids Complicating Pregnancy.

Among the most common, and not the least annoying, complications of pregnancy are leucorrhea, pruritus and hemorrhoids. Inasmuch as none of these are apt to result fatally they are often allowed to go untreated with the result that the patient undergoes many hours of suffering which might have been avoided and comes to the termination of pregnancy nervously unstrung, and unfitted, physically, for the test of labor.

1. *Leucorrhea.*—This complication may be mild or severe. The mild case needs little or no treatment. The severe case may resist almost all methods of treatment, but it can be controlled. In most cases the discharge is the result of an endocervicitis but occasionally we may find an associated vaginitis. Treatment consists of frequent careful douches, medicated suppositories, scrupulous cleanliness, and various measures aimed at improving the general health.

All external cleansing should be performed with pledgets of cotton, using a glycerin or superfatted soap. Sitz-baths using hot water for fifteen minutes, twice daily, will do much to diminish pelvic congestion. Any douche should be given carefully with the patient sitting, the bag not over two feet above the level of the hips, with no interference to the return of the solution. Astringent solutions seem to yield the best results. The following formulae are recommended by various authorities:

Tannic Acid Zinc Sulphate	Equal parts, drachms 2, to one quart of water.
Boric Acid Alum Zinc Sulphate	Equal parts, drachms 2, to one quart of water.

Alkaline douches are not usually indicated as the secretions, in the majority of cases, are alkaline.

Suppositories sometimes prove useful. An astringent douche should be used preceding the insertion of the suppository. The suppository should be inserted before retiring, the patient using a sanitary napkin and a cleansing or astringent douche should be used the following morning. Mercurochrome (1% to 2%) Ichthyol (5% to 10%) are frequently used in the form of a suppository. Applications to, or cauterization of, the cervix are contra-indicated because of the possibility of inducing abortion.

2. *Pruritus.*—This condition may be general or local. General pruritus is believed to be a neurosis, probably toxemic in origin. In severe cases the constant irritation with loss of rest may produce a general exhaustion. Bland diet, occasionally only milk being allowed, sedatives such as the Bromides, Luminal, or the Barbital group are indicated.

Pruritus vulvae.—There are numerous causes of this condition, the principal being, irritating vaginal discharges, seat worms, Trycophyton infection and occasionally glycosuria. Little need be said about the last. Elimination of the glycosuria causes cessation of the pruritus.

3. *Seat worms.*—An enemata of infusion of Quassia or Santonin grs. 5 at night followed by a saline cathartic in the morning usually controls this condition. Trycophyton infection requires antiseptic ointments. The largest group by far are those cases secondary to irritating vaginal discharges. In addition to treating the leucorrhea it is necessary to use soothing lotions or ointments. Phenol, Oil of Cade, Cocain, crude coal tar, Ammoniated Mercury have all been advocated in ointment form. White wash, soda bicarbonate solution and Tr. Benzoin have been used with success.

Gentle cleansing with a mild soap using pledgets of cotton and careful drying should precede the application of the ointment or lotion. Dusting with Aristol or Compound Stearate of Zinc after cleansing is advocated by many authorities. If the condition is severe a sedative may be required for a short time. In the presence of persistent, irritating vaginal discharge the insertion of a medicated pledget of cotton between the labia with frequent changing may allay the irritation. Quartz lamp therapy has yielded results in cases which have persisted despite other methods of treatment.

4. *Hemorrhoids.*—Constipation and straining are predisposing factors.—Elimination of these is often all that is necessary. Recumbent or knee chest position helps. The application of fluid extract of witch hazel or replacement of the hemorrhoids with a well lubricated gloved finger sometimes affords relief.

Various astringent and anodyne ointments and suppositories are used. Quinine and Urea Hydrochloride is being used by many in ointment form to replace the opium in the old "gall and opium" suppositories. If one or two hemorrhoids are present injection of each with 1% Quinine and Urea Hydrochloride will often result in great relief. Operation is contra-indicated.

Questions of a similar nature to the above will be discussed in the JOURNAL each week. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

BOSTON MEDICAL LIBRARY

RABIES

THE necessity for restraining dogs on account of the very considerable increase in the incidence of Rabies in this state during the year 1927 has not been appreciated by the public at large. Many people are disbelievers in the existence of such a disease or that it may be passed on from animals to man. Others feel that because no one they know has been bitten that the menace is greatly exaggerated. Still others are sympathetic with the poor dogs who have to be put under restraint and slyly give them a little liberty. A very large number being lazy and selfish are loath to give up the time to exercise the animal and openly defy the authorities. Something of the history of the knowledge of this disease is here displayed and it is hoped that any who are in doubt as to their duty in respect to the observance of the order of the State Board of Health will find herein reasons which will convince them of the wisdom of the regulation. Whether convinced or not there is no question as to where one's duty lies. Those to whom the state entrusts its Public Health problems, from their knowledge and information, are the only ones in a position to know what the real situation is and plan most efficiently ways to meet the emergency and to them is due our loyal coöperation.

Bearing on this subject one of the exhibits is an address in manuscript read by a clergyman in Newburyport some years ago dealing with Rabies in skunks. Evidently even at that time physicians alone could not convince the public of something of which they did not wish to be convinced. The complaining, quasi-belligerent and questioning attitude of considerable numbers of the public who, for one reason or another, do not wish to believe in the efficacy of quarantine in controlling the spread of disease, can do more to negative the efforts of Boards of Health in these matters than almost anything else. It is hoped that physicians who see this

exhibit will urge laymen who need or desire information along these lines to consult the bibliography which will be published in the NEW ENGLAND JOURNAL OF MEDICINE within a week or so.

Members of the Boston Medical Library who desire to purchase rare or unusual books on Medical subjects will be aided in locating and purchasing such books if they will let their wants be known to the Director or the Librarian.

LIVER DIETS

During the week ending February 25th there was on exhibition in the Boston Medical Library such articles as indicated the activities, both clinical and laboratory, of those who have shown the importance of a high protein diet (liver diet) in the treatment of pernicious anaemia. There follows here a Bibliography on this subject, not by any means complete, but sufficient to enable one desirous of acquainting himself with the steps leading up to this promising development in treatment to cover the main features and complete for himself, if he so desires, a more extended bibliographic study.

This collection of Literature deals with the dietetic treatment of Pernicious Anaemia and tends to show, if considered chronologically, the development of the therapeutic principle now being strongly emphasized in Liver Diets. From the first studies upon this disease the gastro intestinal phenomena have come in for a good deal of symptomatic treatment, but with a better knowledge of biologic chemistry and the role played by vitamines in the body economy, the direction of treatment in pernicious anaemia to the gastro intestinal symptoms is no longer merely an attempt to alleviate suffering but actually to affect a cure. Studies of the effects of toxic, biologic products of body metabolism upon the growth of tissue, the alteration in the size of blood corpuscles under the influence of varying conditions, the experimental effects of diets rich in certain vitamines upon the susceptibility of animals to infections against which they are unusually non-resistant, are all steps in arriving at the employment of a highly rich protein diet in combating the lesions of pernicious anemia. A perusal of this literature will show that present day emphasis upon the importance of this dietary treatment is something that was foreshadowed by early clinical experience and has been brought to its present state of importance largely as a result of biochemical studies.

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By Karl K. Koessler, Siegfried Maurer and Rosemary Loughlin.

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MISCELLANY

STREETS SAFER THAN HOMES

The *Boston Post* quotes statistics given out by the National Safety Council which apparently show that more men, women and children meet accidental death in their residences than are killed in streets. Burns, scalds, falls and asphyxiations were responsible for the deaths in homes. The record of January 1928 showed 2,020 deaths in homes as compared with 1,760 due to motor vehicles.

RESUME OF COMMUNICABLE DISEASES IN MASSACHUSETTS JANUARY, 1928

GENERAL PREVALENCE

The total reported incidence of communicable diseases for January was considerably higher than usual for this month.

While only eighteen cases of poliomyelitis were reported, it sets a new high record for January. More cases of mumps were reported in January of this year than in any previous January in the history of the Department. Thirty-nine more cases were reported than in January, 1927, which at that time was a high record for the month. The January, 1928, incidence of measles was second only to 1926. The incidence of whooping cough was rather high.

The reported incidence of diphtheria, scarlet fever, typhoid fever, non-pulmonary tuberculosis, German measles and chicken pox was within endemic limits.

The reported incidence of pulmonary tuberculosis reached a new low record. Lobar pneumonia was also reported in fewer numbers than in any previous January. The prevalence of influenza was low according to reports.

RARE DISEASES

Anterior poliomyelitis was reported from Auburn, 1; Boston, 4; Bourne, 1; Cambridge, 2; Chicopee, 1; Everett, 1; Lowell, 1; Melrose, 1; Millbury, 1; Natick, 1; Reading, 1; Salem, 1; Saugus, 1; Waltham, 1; total, 18.

Anthrax was reported from Haverhill, 1; total, 1.

Dog-bite requiring anti-rabic treatment was reported from Avon, 1; Boston, 22; Braintree, 2; Brockton, 2; Cambridge, 1; Chelmsford, 1; Holyoke, 2; Lancaster, 2; Lowell, 10; Quincy, 3; Revere, 2; Waltham, 2; Winthrop, 3; total, 53.

Encephalitis lethargica was reported from Springfield, 1; Worcester, 1; total, 2.

Epidemic cerebrospinal meningitis was reported from Ashburnham, 1; Boston, 2; Chicopee, 1; Haverhill, 1; New Bedford, 1; Northampton, 1; Springfield, 1; Sutton, 1; Tewksbury State Infirmary, 1; Uxbridge, 1; total 11.

Pellagra was reported from Newburyport, 1; total, 1.

Septic sore throat was reported from Boston, 12; Cambridge, 2; Chelsea, 1; Dartmouth, 1; Fall River, 1; Framingham, 1; Newburyport, 1; Newton, 1; Northbridge, 1; Northfield, 68; Winthrop, 1; Worcester, 2; total, 91.

Smallpox was reported from Pittsfield, 1; Shelburne, 2; total, 3.

Tetanus was reported from Lynn, 1; New Bedford, 1; Peabody, 1; total, 3.

Trachoma was reported from Boston, 2; Brockton, 1; total, 3.

Trichinosis was reported from Springfield, 9; total, 9.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES.

DISEASE	Cases in Entire Population				Case Rates per 100,000 Pop.		
	Jan. 1928	Jan. 1927	Prosodemis Index	Epidemic Index	Jan. 1928	Jan. 1927	Expected Rate****
ALL CAUSES	13,513	9,115	-	-	312.4	213.5	-
Ant. Poliomyelitis	18	6	16*	1.1**	.4	.14	.4
Diptheria	485	461	573*	.8**	11.2	10.8	13.2
Measles	5,518	719	2,844*	1.9**	127.6	16.8	65.8
Pneumonia, Lobar	521	592	661*	.8**	12.0	13.9	15.3
Scarlet Fever	1,508	2,150	1,240*	1.2**	34.9	50.4	28.7
Tuberculosis, Pul.	372	404	332*	1.1**	8.6	9.5	7.7
Typhoid Fever	28	36	24*	1.2**	.6	.8	.6
Whooping Cough	1,271	641	862*	1.5**	29.4	15.0	19.9
Chicken Pox	1,320	1,729	-	-	30.5	40.5	-
German Measles	104	62	-	-	2.4	1.5	-
Influenza	58	74	-	-	1.3	1.7	-
Mumps	1,311	1,272	-	-	30.3	29.2	-
Tuberculosis, O.F.	76	66	-	-	1.8	1.5	-

CANCER BILL IN NEW YORK

A bill has been introduced in the Assembly of the State of New York by Mr. Cuvillier providing for the establishment of cancer clinics.

The State Commissioner of Health is given authority to establish one or more clinics in each county. Quarters may be voluntarily provided by county, city, town or village but if they are not so provided the Commissioner of health may provide them. The director of each clinic to be appointed by the Commissioner after competitive civil service examination is to be a specialist in the diagnosis and treatment of cancer and is to receive a salary of six thousand dollars. Such physicians, surgeons and other assistants as may be necessary for the proper conduct of the clinic may be appointed by the Commissioner. Clinics when established are to be under the control of the director of the State Institute for the study of Malignant Diseases, subject to the approval of the Commissioner. Patients are to be admitted to the clinics for free diagnosis and such treatment as is available on the recommendation of a registered physician. Radium treatment is to be furnished without charge. Medication is to be furnished at cost. Patients requiring hospital care are to be admitted to the State Institute for the study of Malignant Diseases and if indigent are to be transported there and back at State expense. The Commissioner shall furnish each clinic such radium and other equipment as the director may deem necessary. To carry out this program the bill carries an appropriation of $5,000,000.

This bill is mentioned because it shows a trend of public thought.

DEATHS IN THE REGISTRATION AREA IN CONTINENTAL UNITED STATES IN 1925 AND 1926.

Cause of death	Number		Rate per 100,000 estimated population	
	1926	1925	1926	1925
All causes 1/	1,285,927	1,219,019	1,222.7	1,182.3
Typhoid and paratyphoid fever	6,826	8,287	6.5	8.0
Malaria	2,006	2,132	1.9	2.1
Smallpox	377	709	0.4	0.7
Measles	8,607	2,404	8.2	2.3
Scarlet fever	2,632	2,762	2.5	2.7
Whooping cough	9,317	6,948	8.9	6.7
Diphtheria	7,856	8,068	7.5	7.8
Influenza	42,809	30,538	40.7	29.6
Dysentery	2,921	3,257	2.3	3.2
Erysipelas	2,660	2,455	2.5	2.4
Lethargic encephalitis	1,499	1,630	1.4	1.6
Meningococcus meningitis	1,413	1,095	1.3	1.1
Tuberculosis (all forms)	91,568	89,268	87.1	86.6
Of the respiratory system	80,375	78,103	76.4	75.7
Of the meninges, central nervous system	3,788	3,746	3.6	3.6
Other forms	7,405	7,419	7.0	7.3
Syphilis 2/	16,466	16,332	15.7	15.8
Cancer and other malignant tumors	99,833	95,504	94.9	92.6
Rheumatism	4,219	4,093	4.0	4.0
Pellagra	3,854	3,344	3.7	3.2
Diabetes mellitus	18,861	17,385	18.0	16.9
Meningitis (nonepidemic)	3,219	3,415	3.1	3.3
Cerebral hemorrhage and softening	90,832	87,064	86.4	84.4
Paralysis without specified cause	5,732	5,920	5.5	5.7
Diseases of the heart	209,370	191,226	199.1	185.5
Diseases of the arteries, atheroma, aneurysm, etc.	23,698	23,090	22.5	22.4
Bronchitis	6,961	6,670	6.6	6.5
Pneumonia (all forms)	107,797	96,432	102.5	93.5
Respiratory diseases other than bronchitis and pneumonia (all forms)	9,202	8,875	8.7	8.6
Diarrhea and enteritis (total)	35,296	40,512	33.6	39.3
Diarrhea and enteritis (under 2 years)	28,374	32,450	27.0	31.5
Diarrhea and enteritis (2 years and over)	6,922	8,062	6.6	7.8
Appendicitis and typhlitis	15,751	15,618	15.0	15.1
Hernia, intestinal obstruction	11,734	11,168	11.2	10.8
Cirrhosis of the liver	7,591	7,549	7.2	7.3
Nephritis	103,332	99,320	98.3	96.3
Puerperal septicemia	5,518	5,697	5.2	5.5
Puerperal causes other than puerperal septicemia	9,540	9,618	9.1	9.3
Congenital malformations and diseases of early infancy	75,239	76,158	71.5	73.9
Suicide	13,410	12,495	12.8	12.1
Homicide	9,210	8,893	8.8	8.6
Accidental and unspecified external causes (total)	82,715	80,774	78.6	78.3
Burns (conflagration excepted	6,487	6,375	6.2	6.2
Accidental drowning	6,661	6,456	6.3	6.3
Accidental shooting	2,593	2,570	2.5	2.5
Accidental falls	14,681	13,864	14.0	13.4
Mine accidents	2,825	2,643	2.7	2.6
Machinery accidents	2,224	2,330	2.7	2.5
Railroad accidents	7,026	6,778	6.7	6.6
Collision with automobile	1,556	1,266	1.5	1.2
Other railroad accidents	5,470	5,512	5.2	5.3
Street-car accidents	1,621	1,630	1.5	1.6
Collision with automobile	464	498	0.4	0.5
Other street-car accidents	1,157	1,132	1.1	1.1
Automobile accidents (excluding collision with railroad and street-cars)	18,871	17,571	17.9	17.0
Injuries by vehicles other than railroad cars, street-cars, and automobiles 3/	1,507	1,718	1.4	1.7
Excessive heat (burns excepted)	646	1,355	0.6	1.3
Other external causes	17,573	17,475	16.7	16.9
All other defined causes	117,278	114,419	111.5	111.0
Unknown or ill-defined causes	18,708	17,905	17.8	17.4

1/ Exclusive of stillbirths.
2/ Included tabes dorsalis (locomotor ataxia) and general paralysis of the insane.
3/ Includes airplane, balloon, and motorcycle accidents.

WORCESTER NORTH CANCER CLINICS

Three new State-aided cancer clinics have been opened under the direction of a committee appointed by the Worcester North Medical Society. This committee consists of:—

Dr. F. H. Thompson, Fitchburg, Chairman.
Dr. C. H. Jennings, Fitchburg, Secretary.
Dr. A. F. Lowell, Gardner.
Dr. H. R. Nye, Leominster.
Dr. W. F. Sawyer, Fitchburg.

These clinics are held at Fitchburg, Leominster and Gardner.

The Fitchburg Clinic opened at 11:00 A. M., February 2nd, at the Burbank Hospital. Most of the Medical Committee and a number of the Educational Committee were present. Of the sixteen patients that reported for diagnosis, one had operable cancer with a chance for cure, two were pre-cancerous, one post-operative cancer, one benign tumor, two deferred diagnosis and nine other conditions. Several patients were referred to the Out-Patient Department of the hospital. The staff of the clinic consists of:

MEDICAL STAFF

E. J. Tully, M.D., April, May, June.
F. M. McMurray, M.D., Oct., Nov., Dec.
F. H. Thompson, Jr., M.D., Jan., Feb., March.
J. H. Jacques, M.D., July, Aug., Sept.

SURGICAL STAFF

W. F. Sawyer, M.D., Nov., Dec., Jan.
A. P. Lowell, M.D., Nov., Dec., (1927); Jan. Aug., Sept., Oct. (1928).
R. A. Morgner, M.D., May, June, July.
G. P. Norton, M.D., Feb., March, April.
Note:—Drs. Sawyer and Lowell alternate services; Drs. Morgner and Norton alternate services.

EYE, EAR, NOSE AND THROAT

J. A. Barton, M.D., March, April, May, Sept., Oct., Nov.
J. P. Goray, M.D., Dec., Jan., Feb., June, July, August.

X-RAY

C. H. Jennings, M.D.

The Leominster Clinic opened at 11:00 A. M., February 14th, at the Leominster Hospital. Fifteen patients attended. Members of the hospital staff were present. The staff of the clinic consists of:

MEDICAL STAFF

W. E. Currier, M.D., Jan., Feb., March (now serving).
C. S. Brigham, M.D., April, May, June.
F. C. Shultis, M.D., July, August, Sept.
C. J. Laserte, M.D., Oct., Nov. and Dec.

SURGICAL STAFF

H. R. Nye, M.D., Jan., Feb., March (now serving).
M. H. Chrystal, M.D., April, May, June.
B. P. Sweeney, M.D., July, August, Sept.
A. A. Wheeler, M.D., Oct., Nov., December.

The Gardner Clinic opened at 11:00 A. M., February 21st, at the Henry Heywood Hospital. It was a very interesting clinic with twenty-seven patients, many of which were serious cases. Three were found to have cancer, seven pre-cancerous conditions, six deferred, one normal and ten others. Four were referred by doctors, three by nurses and the remaining twenty as a result of newspaper articles. The full staff of the clinic consists of:

DOCTORS ON SERVICE

Surgical, Senior
George Mossman, M.D., Jan., Feb., July, Aug.
Albert F. Lowell, M.D., May, June, Nov., Dec.
Herbert W. Ellam, M.D., March, April, Sept., Oct.

Surgical, Junior
Arthur G. Heininger, M.D., Jan., June, July, Dec.
Clifford S. Lancey, M.D., Feb., March., Aug., Sept.
Jesse C. Hales, M.D., April, May, Oct., Nov.

Medical
T. Roland Ekwall, M.D., Jan., Feb., March, April.
L. S. B. Lundwall, M.D., May, June, July, Aug.
Fred B. Colby, M.D., Sept., Oct., Nov., Dec.

Obstetrical
James E. Waters, M.D., Senior.
F. X. DuFault, M.D., Junior.

In addition each clinic has a full consultative staff made up of Boston as well as local physicians.

These three clinics bring the total number of State-aided cancer clinics up to nine.

COMMISSION ON MEDICAL EDUCATION

FEBRUARY 28TH, 1928

Editor of THE NEW ENGLAND JOURNAL OF MEDICINE:

President A. Lawrence Lowell, Chairman of the Commission on Medical Education, has appointed the attached committees of the Commission to deal with certain groups of problems before it.

Sincerely,

WILLARD C. RAPPLEYE.

COMMITTEE ON PRE-MEDICAL TRAINING

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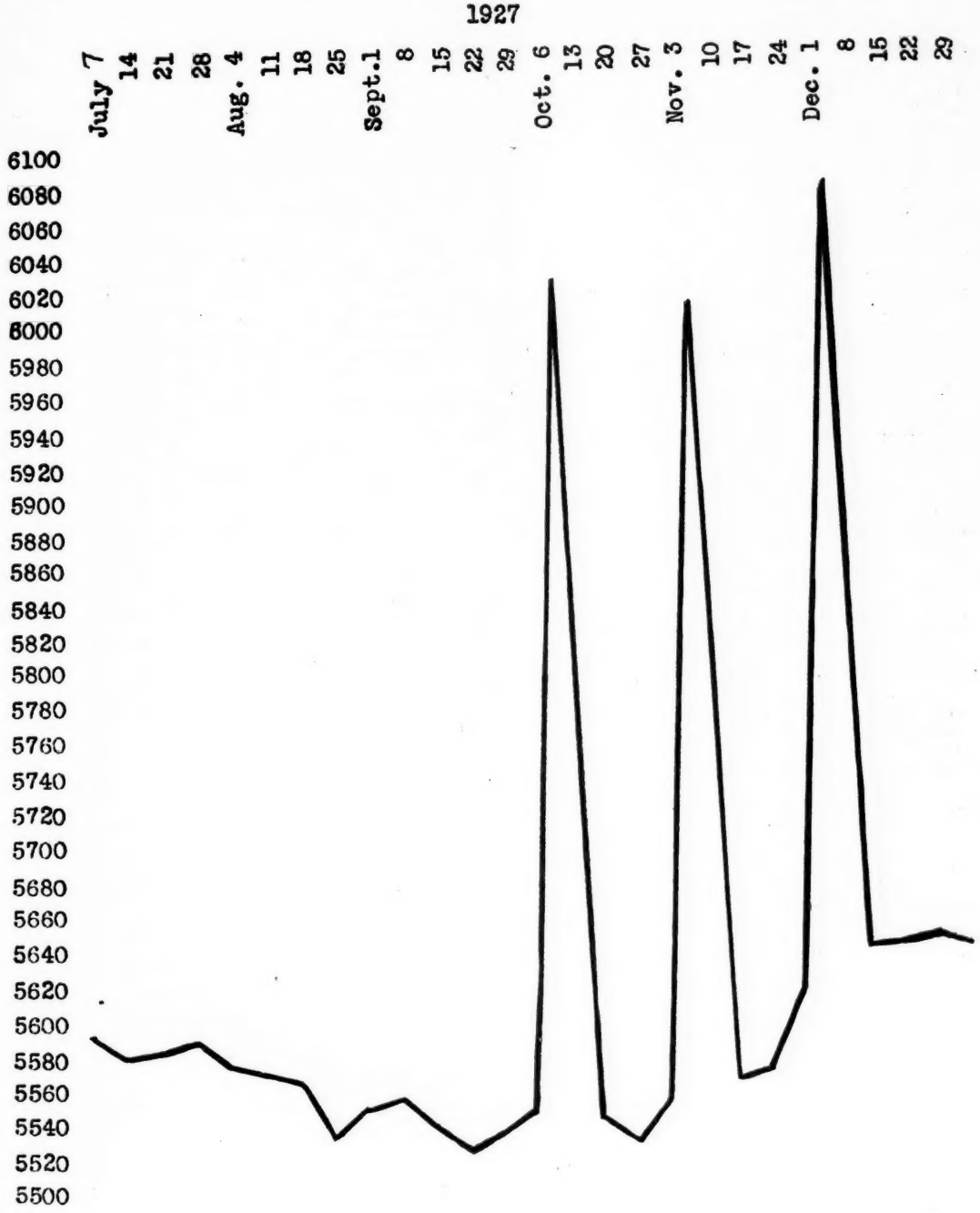
Doctor Willard C. Rapplye, Director of Study of the Commission is Secretary of each of these Committees.

A GRAPH SHOWING THE CIRCULATION OF THE JOURNAL

We are pleased to publish the accompanying chart which shows the JOURNAL circulation from July 1927 through December 1927. The high peaks show the increased circulation for those issues which have been sent to members of the New Hampshire Medical Society. Later we shall be able to show the circulation as affected by the Vermont State Medical Society.



REPORT OF INSPECTIONS* OF SCHOOLS OF CHIROPRACTIC AND NATUROPATHY IN THE UNITED STATES

Personal inspections have recently been made of all schools existing in the United States for the teaching of particular methods of treating human diseases. While a complete report of all information secured would hardly be justified, a brief resumé of conditions found in schools of chiropractic and naturopathy will be of interest to both physicians and laymen.

SCHOOLS OF CHIROPRACTIC

Chiropractic is said to have originated in 1895 with D. D. Palmer, a magnetic healer of Davenport, Iowa, and to have been "developed" by his son B. J. It is in reality the older osteopathic concept very slightly modified and renamed. It was the enlarging of the osteopathic field and the lengthening of the osteopathic curriculum that gave chiropractic its opportunity, and the latter's rapid development has been due largely to the fact that it offered a shortcut to osteopathy.

According to this theory disease is due to vertebral subluxations which cause a pinching of spinal nerves between bones. This pinching interferes with the flow of "Innate Intelligence" or vital energy to the body tissues. The spinal "adjustment" alone renews that flow and restores health.

Chiropractic has had, during its brief career of thirty-two years, about one hundred and fifty schools. Forty of these are still active, many of them offering courses at night only and having a mere handful of students; more than half of the forty are so poorly housed and so inadequately financed that their future is problematic. B. J. Palmer, the "developer" of the cult, recently said: "According to our records, forty-eight chiropractic schools have closed their doors during the past two years." **

An entrance requirement of four years of high school study or its equivalent is claimed by the best of these forty schools; it is probable, however, that not one of them is enforcing the requirement. Mature age, business experience, ability to carry the chiropractic courses, or any convenient achievement is declared to be a satisfactory equivalent. A few schools give ridiculously short and easy high school quiz courses and certificates, for which a special tuition fee is charged; this course in one of the best chiropractic schools† occupies two evenings weekly for six months. But fifty per cent. or more of these schools do not even claim to require a high school education.

The courses offered in the majority of these schools run through "three school-years of six months each". They are poorly chosen, poorly arranged, and very poorly outlined. The student may begin on any school day of the year and finish on the same day of the eighteenth month thereafter. There are no adequate records of amount or quality of work done. Going to school is a matter of "doing time", and the student is given his doctor's degree as soon as the time expires. Legislation has forced a few schools to lengthen their courses to twenty-four or twenty-seven months. When this is done, the school usually shortens its working day to three or four hours as compensation, and holds out to the student his ability to spend the remainder of his time earning his expenses. Also, in almost any twenty-four or twenty-seven month school, a student may graduate at the end of eighteen months if he declares his intention to practice in a state requiring only that amount of study. A few schools require less than eighteen months, and one of the most widely known gives only a home-study course that may be finished within three months.

The equipment invariably found in these schools consists of a few adjusting tables, students' chairs, and desks. Some have turned to physical therapy or naturopathy and installed a varying amount of electrical apparatus. A very few have x-ray machines, used (except in one instance*) in "spinography". About eight of the forty schools have small chemistry laboratories, with equipment for the very simplest experiments only. Two or three have dissection laboratories. None of the forty schools have laboratories for physics, physiology, physiological chemistry, bacteriology, histology, embryology or pathology. Courses in these important laboratory subjects are either given by the didactic method or omitted altogether.

The clinics are not adequate for training in the recognition of even the most common disease. There is no adequate apparatus for the diagnosis of such diseases. The treatment procedures taught and practiced do not include the therapeutic measures of demonstrated value, and so the patient is left practically without either diagnosis or treatment. There are no hospitals to which patients in need of hospitalization are referred, and none in which students may study the progress of cases.

The faculties of these forty schools are made up of men of very poor educational qualifications. While a very few are both educated and shrewd, and an occasional doctor of osteopathy or even of medicine may be found among them, the great majority are not trained in any of the "medical sciences", the non-medical sciences, or the liberal arts. They are frankly out of sympathy with the organized medical and public health interests, and are openly antagonistic to many of the most universally recognized facts and procedures of civilized life.** They circulate, by word of mouth and through the school literature, greatly misleading statements about the chiropractic "profession", ambiguous testimonials concerning the cure of incurables, and wild claims about the schools themselves which a most superficial investigation proves to be without foundation in fact.†

3. SCHOOLS OF NATUROPATHY

While a venerable old age is claimed for naturopathy, its development has really been more recent than that of chiropractic; its chief exponent, Benedict Lust of New York, claims that he organized the "parent school" in 1896, but even so ancient an origin as that is improbable.

The cult seems to have no basic idea but to be rather a nature-cure hodge-podge with a decided antipathy to drugs. In fact naturopathy has developed in part as an effort to broaden the scope of chiropractic. There are about five schools of naturopathy and all of them teach chiropractic. Several of the chiropractic schools teach naturopathy.

*Inspections were made during the summer and fall of 1927, by representatives of the Council on Medical Education and Hospitals of the American Medical Association. The schools included in these inspections are the schools of chiropody, chiropractic, naturopathy, optometry, osteopathy, and physical therapy, as well as a large number of miscellaneous institutions.

**Article: "The Great Undertow".

†National College of Chiropractic, Chicago.

*The Pasadena College of Chiropractic reports that its students are taught x-ray therapeutics.

**For example: vaccination, typhoid immunization, specific medication, diphtheria antitoxin, quarantine, focal infection, germ theory of disease, etc., etc.

†Thirteen of these schools have made affidavits to the American College of Chiropractors that the curriculum includes 3528 forty-five-minute hours of work, and on the basis of these affidavits have been rated by this "college" as "class A schools" and awarded "diplomas of honor". Allowing for ten-minute intervals between classes and five school days per week (considering that not a single holiday is allowed during the eighteen months of the course), this schedule would require more than eight hours of actual attendance daily, a program which no school of any nature would attempt to follow. The American College of Chiropractors admits that none of these schools were inspected prior to their being rated and that none of their claims have been investigated since.

Probably fifty or even seventy-five per cent. of the practicing naturopaths have been recruited from the ranks of chiropractic, and the two cults have always been on the friendliest terms.*

Entrance requirements are said to include four years of high school study or its equivalent, but none of the schools of naturopathy really enforce this rule. Records are not kept; the student's word is taken in the matter, and if he is so thoughtless as to confess that he lacks the high school requirement the matter is either forgotten or patched up with as little embarrassment as possible. One school offers a night course in which the deficiency may be made up (extra tuition being charged for this service), but admits that the requirement has never been enforced.

The courses run through twenty-four or thirty-six months, with a short school day and an evident carelessness regarding attendance. It is probable that only one school has day-classes. These institutions show a marked tendency to have students attending two or more "schools" simultaneously. One school, for example, which claims to operate under about twenty different names, offers "a liberal reduction to students taking four or more courses (schools) at the same time". Another tried to enroll the inspector in two "schools" at once when fifty per cent. of the sessions of one conflicted with the sessions of the other. One school counts attendance in each class twice—once for naturopathy and once for chiropractic—and so claims to pile up 6000 class-hours (thirty-minute periods) of study thus "qualifying" under the new Florida law; this school gives every student two diplomas, and many students three or more, each diploma bearing a different name for the school. No outline of the courses offered is published by any of the schools of naturopathy.

The subjects include sysmotherapy, glucokinesis, zone therapy, physicultopathy, astrological diagnosis, practical sphincterology, phrenological physiology, spectrochrome therapy, iridiagnosis, chiropractic, diet, hydrotherapy, osteopathy, physiotherapy, electrotherapy, mechanotherapy, heliotherapy, tension-therapy, naprapathy, neuropathy, physical culture, and many others.

The equipment in these school differs little (if at all) from that found in schools of chiropractic, except that a small amount of electrical apparatus is usually found, and adjusting tables are not quite so much in evidence. A small chemistry laboratory is usual; that of the "parent school" in New York has room for two or possibly three students, but has not sufficient equipment for so large a number to perform the same experiments at the same time. There are no laboratories for physics, physiology, physiological chemistry, anatomy, bacteriology, histology, embryology, or pathology.

The clinics are even less adequate than those of the chiropractic schools. No school of naturopathy has a hospital associated. The therapeutic procedures include chiropractic, osteopathy, hydrotherapy, electrotherapy, diet and a wide range of so-called "natural methods".

The faculties of these schools are composed of untrained men many of whom have been recruited from the schools of chiropractic. Their educational qualifications are so like those of teachers of chiropractic that no further statement is necessary. That such instructors should train students in the proper use of so wide a variety of therapeutic measures, and do it within the short time allotted, is obviously impossible.

GENERAL DISCUSSION

In such a brief report many matters of interest must be entirely omitted and many others no more than mentioned; elaboration, though a constant temptation, is one which brevity forbids. But to one who is familiar with the elaborate equipment and curriculum found necessary to proper training in the science and art of healing today, the most impressive thing about these naturopathic and chiropractic schools is not what they are, but what they are not. A few statements from this point of view will properly close the report itself and also form an appropriate prelude to the list of schools following.

1. Of the fifty active schools listed, a few are mere "branches" rather than separately existing institutions, and these fifty constitute less than one-third of the number formerly existing.

2. All but a mere handful of these fifty existing schools are so poorly housed and so inadequately financed that their continuation is problematic.

3. Very few of these schools have even one adequately trained teacher on the faculty, and there are probably less than five expert all-time teachers in the entire lot of fifty institutions.

4. Not one of these schools actually enforces a matriculation requirement of even five minutes of high school study.

5. Not one of the fifty schools gives so much as one worthy laboratory course or has one worthily equipped laboratory.

6. Not one of these schools conducts a clinic in which a wide variety of the common diseases may be studied.

7. There is not one clinic equipped with the trained personnel or the scientific apparatus for the clinical diagnosis of a variety of the common diseases, nor having a laboratory equipped for checking such clinical diagnosis.

8. There is not one clinic equipped for the proper treatment of patients suffering from such diseases.

9. There is not one of these schools whose students or whose faculty may enjoy the privilege of practice or even of observation in any worthy hospital.

10. There is not one of these schools that does not proceed on the basis of unproved theory, ignoring the lack of endorsement by all worthy educational institutions.

11. There is not one of these schools that does not ignore or even avowedly oppose the scientific point of view and the facts of medical science accepted by the authorities of the entire civilized world.

12. There is not one of these schools that does not owe its existence to the fact that it offers a short-cut to the practice of medicine.

SCHOOLS OF CHIROPRACTIC

California

Berkeley Chiropractic College, 2168 Shattuck Avenue ..... Berkeley
Gale College of Chiropractic, 1406 West Seventh Street ..... Los Angeles
Los Angeles College of Chiropractic, 918-20 West Venice Boulevard ..... Los Angeles
Ratledge System of Chiropractic Colleges, 2415 South Western Avenue ..... Los Angeles
West Coast Chiropractic College, Inc., Fourteenth Street and Seventh Avenue ..... Oakland
Pasadena College of Chiropractic, 1608 North Fair Oaks Avenue ..... Pasadena
Clewell Chiropractic College, 1574 Fourth Street ..... San Diego
San Francisco College of Chiropractic, 1067 Market Street ..... San Francisco

Colorado

Colorado Chiropractic University, Fourteenth Street and Cleveland Place ..... Denver

*The chiropractor may easily become a naturopath by taking a three-month "post-graduate" course in one of the naturopathic schools.

District of Columbia

Chiropractic Research University, 1349 L Street, N. W. ..... Washington

Georgia

Atlanta Chiropractic College, 286 West Peachtree Street ..... Atlanta

Illinois

American University, 34 West Lake Street, Chicago
National College of Chiropractic, 20 North Ashland Boulevard ..... Chicago

Indiana

Evansville Chiropractic College, Inc., 501 Main Street ..... Evansville
Ross College of Chiropractic, Inc., 1311 Webster Street ..... Fort Wayne
Central States College of Chiropractic, 412-413 Kresge Building, 41 East Washington Street ..... Indianapolis
Lincoln Chiropractic College, Inc., 518 North Delaware Street ..... Indianapolis

Iowa

Palmer School of Chiropractic, 800-1100 Brady Street ..... Davenport

Kansas

Colvin Chiropractic College, 237 South Main Street ..... Wichita

Maryland

Maryland College of Chiropractic, 520 North Charles Street ..... Baltimore

Minnesota

Minnesota Chiropractic College, Inc., 70 Willow Street ..... Minneapolis

Missouri

Chiropractic University, Tenth and Campbell Streets ..... Kansas City
Cleveland Chiropractic College, 1417 Linwood Boulevard ..... Kansas City
Western College of Chiropractic, 2021 Independence Avenue ..... Kansas City
Missouri Chiropractic College, 706 North Grand Boulevard ..... St. Louis

New York

Carver Chiropractic Institute, 71 West Twenty-third Street ..... New York
Columbia Institute of Chiropractic, 111 West Eighty-third Street ..... New York
New York Eastern Institute of Chiropractic, 124 West Seventy-fourth Street ..... New York
Standard School of Chiropractic, 44 Fifth Avenue ..... New York

Ohio

Akron College of Chiropractic, 985 East Market Street ..... Akron
Blodgett Chiropractic College, 565 Rose Building, 2062 East Ninth Street ..... Cleveland
Metropolitan Chiropractic College, Inc., 4501 Prospect Avenue ..... Cleveland

Oklahoma

Carver Chiropractic College, 521 West Ninth Street ..... Oklahoma City

Oregon

Pacific Chiropractic College, Inc., 125 North Grand Avenue ..... Portland

Pennsylvania

Doughty-Marsh College of Chiropractic, 4201 Walnut Street ..... Philadelphia
National Chiropractic College, 2324 Columbia Avenue ..... Philadelphia
Universal Chiropractic College, 1940 Fifth Avenue ..... Pittsburgh

Texas

Texas Chiropractic College, 602-606 West Myrtle Street ..... San Antonio

Washington

Seattle College of Chiropractic, 401-4 Lowman Building, First Avenue and Cherry Street, Seattle

SCHOOLS OF NATUROPATHY*

California

International School of Professional Arts and Sciences, 860 Geary Street ..... San Francisco

Florida

Blumer College of Naturopathy, First Avenue and Third Street ..... Miami

Maine

American School of Naturopathy, 28-31 Hammond Building, 12 Monument Square ..... Portland

Minnesota

Great Northern University, Room 203, 2624 East Lake Street ..... Minneapolis

New Jersey

First National University of Naturopathy, 143 Roseville Avenue ..... Newark

New York

American School of Naturopathy, 236 East Thirty-fifth Street ..... New York

Pennsylvania

Naturopathic College, 27 Freeport Street ..... Aetna
Franklin Research University (School of Naturopathy), 718 Spruce Street ..... Philadelphia
Naturopathic College and Hospital, 1333 North Broad Street ..... Philadelphia
Naturopathic College, 252 North Main Street, Wilkes-Barre

*Of the ten schools listed three are branches only and two others were not active at the time of the inspection.

DEATHS DUE TO SMOKE AND GASES

Samuel E. Dibble, Professor and head of the Department of Plumbing, Heating and Ventilating at the Carnegie Institute of Technology, claims that, although the death rate has been reduced by the control of water supplies, the pure food laws and various public health activities, that there is an increasing death rate due to impure air.

He believes that ninety per cent. of the housewives of the country are being "gassed" in their homes because of carbon monoxide which is produced by hot water heaters and gas stoves which are not equipped with ventilating flues.

Smoke from combustion of bituminous coal is another source of impure air.

In referring to plumbing, Professor Dibble claims that much polluted air may be charged to poor plumbing.

He urges far more effective legislation which will eliminate the dangers referred to.

LEGISLATIVE NOTES

House 788, 789 and 790 have been granted leave to withdraw. The first required that all prescriptions be written in duplicate, and contain a concise statement of the disease and the effect sought by the remedy prescribed. The second required that the ingredient be stated on a label on the bottle. The third required that the English name of the ingredient be given in any prescription.

The Committee on Public Health has reported a new bill, House 1029, relative to the Examination of Persons engaged in the Handling of Food. It provides that the Commissioner of Public Health or local Boards of Health may require any person intending to work or working in an establishment making or selling any article of food and whose duties pertain to the production or sale of food to submit to thorough examination when considered by the Commissioner or Board necessary for protection of the public health. The examination is to be made by a registered physician at the expense of the department or local board. The examination may include the taking of body fluids, secretions or excretions. The person examined may have his own physician present and may have additional samples examined at any laboratory approved by the department. The owner or operator of any establishment under penalty of a fine is forbidden to employ any person afflicted with or a carrier of y disease detrimental to the public health.

RECENT DEATHS

HATCHETT—Dr. William Josephus Hatchett, died at his home in Somerville, March 7, 1928, aged 72. He was a native of the Virgin Islands and a graduate of Bellevue Hospital Medical College in 1887, settling in Somerville that year and joining the Massachusetts Medical Society. He was a member of the Workingmen's Sick and Death Benefit Society, and of the A. O. U. W. He is survived by his widow, a son and a daughter.

PETERSON — Dr. Charles Augustus Burton Peterson, a Fellow of the Massachusetts Medical Society since 1892, died at his home in New Bedford, March 9, 1928, at the age of 72.

He was a native of Philadelphia, studied at the University of Michigan, and took his M.D. at the Long Island College Hospital in Brooklyn, in 1886.

His practice gravitated to eye, ear, nose and throat work until he devoted all his attention to it.

KENNEDY—Dr. Frederick William Kennedy, of Andover, a graduate of Harvard Medical School in 1883, and long a practitioner of Lawrence, died at the Shawsheen Hospital in Andover, March 4, 1928, at the age of 70. Dr. Kennedy was born in Londonderry, N. H., and joined the Massachusetts Medical Society in 1884, resigning in 1914, when he retired from practice. He is survived by one son. Dr. Kennedy was a member of the first Board of Health of Lawrence.

OBITUARIES

PTOLEMY O'MEARA EDSON, M.D.

Dr. Edson, long a resident of Roxbury and for many years a leading member of the medical profession of Boston, died on February 13, 1928, in his ninety-fifth year after a brief illness of coronary embolism. He was born in Chester, Vermont, on December 27, 1833. His father, Dr. Ptolemy Edson, was a well-known physician throughout Vermont, being in active practice till past eighty years of age.

The family came of straight English lineage, the record being unbroken for four hundred and fifty years back to Thomas Edson of Adderbury, Oxfordshire, who was born about 1480. The descent came through Mr. Samuel Edson who landed in Salem, Mass., in 1639 and settled in Bridgewater, Mass., in 1650. On his mother's side Dr. Edson came from Mayflower Pilgrim stock.

Dr. Edson prepared for college at the Appleton Academy, New Ipswich, N. H., and was graduated A.B. from the University of Vermont in 1857. He read medicine with his father and with Dr. Perkins of the Castleton Medical School and entered the Harvard Medical School in 1859, having spent one year at the Medical School of the University of Vermont. He completed his full term of study at the Harvard School, but as he lacked in the requisite term of study in that school and was anxious to get to work, he took his degree of M.D. from the former in 1860.

In the Civil War Dr. Edson served as Asst. Surgeon in the First Vermont Cavalry from November, 1861, to March, 1864, when he was made Surgeon to the 17th Vermont Infantry. He was with the Army of the Potomac in all its battles and was cited for conspicuous service at Orange Court House, August 2, 1862. He was medical officer on Gen. Kilpatrick's Staff. At the close of the war he resumed practice in Chester and was chosen superintendent of schools.

In 1866 Dr. Edson moved to Roxbury where he lived until his death. He built up a large general practice and also took an interested and active part in public affairs. For many years he was attending physician to the House of the Good Shepherd and for five years was a member of the Boston School Committee. In educational matters he had broad and advanced views and advocated measures of reforms, the fundamental importance of which is only now beginning to be appreciated.

His professional affiliations included membership in the Massachusetts Medical Society, Massachusetts Medical Benevolent Society, Boston Medical Library, Boston Obstetrical Society and charter member of the Roxbury Society for Medical Improvement. He was also an original member of the University Club of Boston. He was a companion of the Military Order of the Loyal Legion and had been commander of Post 26, G. A. R. He was always greatly interested in anything relating to the Civil War, and had an extensive library pertaining thereto. He was a member of the First Religious Society in Roxbury, Unitarian. He was married in 1865 to Miss Mary A. Young of Bangor, Maine, who died in 1922. Four children and three grandchildren survive him. His son, Dr. Carroll E. Edson, is a prominent physician in Denver, Colorado.

The subject of this sketch was a man with a strong, upstanding personality. He held positive opinions upon all prominent topics of the time and had the ability and courage to defend them. He was dependable in all relations of life and occupied a high position in the community. He was abundantly endowed with that most desirable quality in a physician, good judgment, i. e. common sense. This trait was in evidence in the case of "the breather" that occurred in this vicinity many years ago. A strong man was thrown from a street car in taking a curve and struck on his head. He soon developed a respiration of over one hundred per minute that persisted for months. It was a unique case and was seen by several physicians who expressed various opinions. Dr. Edson insisted that the trouble was functional and that he would recover, and he did.

Dr. Edson kept abreast with medical progress and was ready to adopt new methods that appealed to his judgment. For many years he carried on a

large practice over a wide area and was well and favorably known. Like so many members of our profession, he was not always mindful of the old adage, "a laborer is worthy of his hire!" He was too absorbed in his work to give necessary attention to the financial side of his career. He always had a large number of charity cases on his hands to whom he gave freely of his valuable services. He practiced medicine for nearly sixty years and was a typical general practitioner of the best sort. His patients were loyal to him over long periods of time, in some instances including three generations in each family. In his field of activities he strongly resembled Weelum MacLure, that physician in Drumtochty so beautifully portrayed by Ian MacLaren in "A Doctor of the Old School."

Dr. Edson lived a long and useful life. He did an immense amount of work and did it well. His memory will always be a source of satisfaction to his family, to his patients and to his friends.

GEORGE W. GAY, M.D.

DR. P. O'MEARA EDSON—AN APPRECIATION

Words can only express feebly what comes to our mind when we contemplate the well-rounded life of our colleague, Dr. P. O'Meara Edson. We must stop and try to consider the charm and strength of it as now completed by his recent death.

This "Roxbury Society for Medical Improvement" learns with sincere sadness of the passing of him who was its last original charter member. Full of years and loaded with the prizes of a most successful and honorable career, known far and wide for his exceptional professional ability, he served his day and generation (we may well say) both physically and mentally as a *giant* amongst his fellows in that position fast disappearing, known as "the beloved family physician". He served his state and nation as an Army Surgeon in the Civil War, and that, during heroic days when such service entailed hardships that killed many of those not fortunate enough to possess an exceptional constitution, and even on those who survived because of their vigor, it left the martial stamp.

Rugged, as his native Vermont hills, was his defense of right and scathing in his attack on the wrong, sympathetic and helpful to the younger brothers in the professional service, and generous in his dealings with all his fellows, no one could ever question or doubt where Dr. Edson stood or the value of his weight and influence. Commanding in face and figure, it was a daring patient who would ever disobey his orders. Those of us who knew his worth, recognized that his judgment was the fruit of a long and wide experience, and that it was a rare individual who could ever hope to attain or emulate his wit and wisdom.

The intuitions of such a man were often more accurate than the conclusions of more elaborate findings. It may sound trite to say that he was "unique" and that we can never forget the character of such a grand old man, but the fine record he has left behind him is a bright page in all our memories and an inspiration to all those who follow after him. Our Society has lost a member of heroic proportions, whose place none of us can ever hope to fill. He joins the noble dead! His mantle none of us can ever hope to wear!

For the Roxbury Society for Medical Improvement,

DR. H. WARREN WHITE.

HAROLD BURNEY EATON

To Members of the Boston Society of Psychiatry and Neurology:

In the death of Harold Burney Eaton this Society has lost a valuable member of some years' standing, and the community has lost a neurologist of worth.

Dr. Eaton became interested in neurological and psychiatric subjects soon after his graduation from the Harvard Medical School in 1915. His hospital affiliations were successively with the neurological departments of the Carney Hospital, the Psychopathic Hospital, the Boston Dispensary, and finally the Massachusetts General Hospital; in all his institutional positions he was found to be a man who could be relied upon for intelligent action.

Perhaps his most outstanding work was during the Great War, in which he volunteered soon after the entrance of the United States. He saw active service at Chateau Thierry, the Marne-Aisne, St. Mihiel, and Champagne offences, and was decorated on July 9, 1918, with the Croix de Guerre.

In his death on January 19, 1928, we lose not only a useful member of our profession, but a good friend.

Resolved, That this memorial be written into the records of this Society, published in the NEW ENGLAND JOURNAL OF MEDICINE, and a copy sent to his family.

(Signed)
E. W. TAYLOR,
J. B. AYER.

February 16, 1928.

CORRESPONDENCE

DR. PTOLEMY O'MEARA EDSON

25, February 1928.

THE NEW ENGLAND JOURNAL OF MEDICINE.

Mr. Editor:

May I have sufficient of your valuable space in which to express my admiration for the personal and professional qualities alike, of the late Dr. Ptolemy O'Meara Edson? Mine is no post-mortem eulogy. The following verses were written and sent to him on the occasion of his ninetieth birthday:

What! Up to ninety? Carry on, my lad!
You'll go to par—or my judgment is bad.
Your leg-joints may creak like a blessed old Ford,
But think of their mileage in work for the Lord!
Think, too, what you've done with your head and your hands
(You've just the sort a sick fellow demands),
So, I give you this toast in old raspberry shrub—
Our favorite beverage now in the Hub:—
May the years from this on rest as light as a feather
And naught come to your "jints" save the sunniest weather.

* * *

If only we had the stout liquors of yore,
I'd mix you up something besides metaphor.

* * *

To this birthday greeting there came back the following answer, penned by a hand but little joggled by that ineffably ruthless disturber of motor equilibrium—Father Time:

"January 2nd, 1924.

Dear Doctor Courtney,

If I could feel that I had gained the stature and girth, pictured in your brilliant greeting of my ninetieth birthday, I would allow no other 'Ifs' to trouble my advance toward the century limit.

Your bountiful supply of metaphoric mixture, as you are pleased to call it, has made needless any draught of the elevating dram of bygone days, to lift me into the realm of self-esteem and joyful camaraderie.

Trusting that this declaration of my exaltation will tell you how grateful I am for your generous tribute, and tendering all good wishes for a New Year with few "Ifs" and "buts", I am, as always,

Your sincere friend,
P. O'M. EDSON."

By the death of Dr. Edson, both the community and the profession lose one of the sanest, sturdiest and most resourceful of that fast-disappearing race of medical men, known to the profession and public alike as "General Practitioners".

Our first, our last, cry oft they hear;
And, in between, our groans.
I can't believe the good *they* do
Is buried with their bones.

JOSEPH W. COURTNEY.

PUBLIC HEALTH DIVISION OF THE MUNICIPAL REFERENCE LIBRARY

505 Pearl street, New York City

January 13, 1928.

Dear Editor:

It occurred to me that your attention may not have been called to a recent list of health books published by us. We inclose a copy of this Public Health Number of the Municipal Reference Library Notes. In it, you will find the books of the year on every phase of health work carried on in a city, classified for convenient use by physicians and nurses.

We should be glad if special mention of the list might be made in the columns of your magazine.

Appreciating your many courtesies, I am,

Very truly yours,
SARA L. HALLIDAY, *Librarian.*

GENERAL ADMINISTRATION

Good health and happiness, J. Ellis Barker.

The principles of chemistry and their application, Eleanor H. Bartlett and Katharine Ink.

Outlines in health education for women, Gertrude Bilhuber and Idabelle Post.

Dental education in the United States and Canada, Carnegie Foundation for the Advancement of Teaching.

Laboratory manual in medical bacteriology, Columbia University, College of Physicians and Surgeons.

Health problem sources, Marion Olive Lerrigo.

Clinics, hospitals and health centers, Michael M. Davis.

Physical examination text for use by physical directors, G. G. Deaver.

Health work for girls, S. Maria Elliott et al.

The new medical follies, Morris Fishbein.

How to make the periodic health examination; a manual of procedure, Eugene L. Fisk and J. Ramser Crawford.

Mouth hygiene, Alfred C. Fones.

A popular encyclopedia of health, Lee K. Frankel and Donald B. Armstrong.

The cause and cure of speech disorders, James S. Greene and Emilie J. Wells.

The national government and public health, James A. Tobey.

A guide to the history of physical education, Fred E. Leonard.

The care of the face, Oscar L. Levin.

City health administration, Carl E. McCombs.

Criminal responsibility, Charles Mercier.

The organization and administration of playgrounds and recreation, Jay B. Nash.

Recent advances in bio-chemistry, John Pryde.

A brief history of physical education, Emmett A. Rice.

A practice of physio-therapy, C. M. Sampson.

Dudley Allen Sargent, an autobiography.

Calisthenics, S. C. Staley.

Social factors in medical progress, Bernhard J. Stern.

Subject matter in health education, Ruth Strang.

The Fifth Avenue Hospital Clinics, the Fifth Avenue Hospital.

Better doctoring—less dependency, Louise Stevens Bryant.

Medical care for a million people, The United Hospital Fund of New York.

New Clinics for old, Michael M. Davis and Anna M. Richardson.

Medical science for every day use, Shields Warren.

The new servant; electricity in the home, Mary O. Whitton.

CHILD HYGIENE

Cultivating the child's appetite.

Child health and character, Elizabeth M. S. Chesser.

Child Life Investigations, Eardley L. Holland and Janet E. Lane-Clayton.

Feeding and the nutritional disorders in infancy and childhood, Julius H. Hess.

The air we breathe, James Kerr.

Your nervous child, Erwin Wexberg.

Health supervision and medical inspection of schools, Thomas D. Wood.

SANITATION

The fundamentals of school health, James Kerr.

The principles of sanitation, C. H. Kibby.

Hygiene and sanitation, George M. Price.

The smoke problem of great cities, Napier Shaw and John S. Owens.

Hygiene and sanitation, Jesse F. Williams.

Workers' health and safety, Robert M. Woodbury.

PREVENTABLE DISEASES

Cancer control, American Society for the Control of Cancer.

Surgical diseases of the gall-bladder, liver and pancreas and their treatment, Moses Behrend.

Self-care of the diabetic; for the use of diabetic patients, J. J. Conybeare.

An introductory course in ophthalmic optics, Alfred Cowan.

Contributions to ophthalmic science, William H. Crisp and William C. Finnoff.

Ophthalmoscopy, retinoscopy and refraction, W. A. Fisher.

A year book of treatment and practitioner's index, International Medical Annual.

The diabetic Life; its control by diet and insulin, R. D. Lawrence.

Poliomyelitis, with special reference to treatment, W. Russell MacAusland.

Diseases of the teeth, their diagnosis and treatment, John A. Marshall.

Evolution of preventive medicine, Arthur Newsholme.

The carrier problem, K. C. Paul.

Therapeutics, materia medica and pharmacy, Samuel O. L. Potter.

The conquest of disease, Thurman B. Rice.

Preventive medicine and hygiene, Milton J. Rosenau.

Should we be vaccinated? Bernhard J. Stern.

Modern Clinical syphilology, John H. Stokes.

The skin, its care and treatment, Albert Strickler.

A primer for diabetic patients, Russell M. Wilder et al.

A handbook of diseases of the stomach, Stanley Wyard.

A textbook of bacteriology, with a section on pathogenis protoza, by E. E. Tyzzer, Hans Zinsser.

STATISTICS

A statistical survey of three thousand autopsies, William Ophuls, Stanford University.

An introduction to the theory of statistics, G. Udny Yule.

FOODS

Food costs and city consumers, Charles E. Artman.

Correct and corrective eating, Bernard Bernard.

Practical dietetics for adults and children in health and disease, Sanford Blum.

Some administrative problems of the high school cafeteria, Willard Stanley Ford, Columbia University.

The chemical analysis of food, Henry E. Cox.

Condensed milk and milk powder, prepared for factory, school and laboratory, Otto F. Hunziker.

Food values, Louise M. Keegan.

The newer knowledge of nurition, E. V. McCollum and Nina Simmonds.

Feeding the family, Mary S. Rose.

The foundations of nutrition, Mary S. Rose.

The care and handling of milk, Harold E. Ross.

Chemistry of food and nutrition, Henry C. Sherman.

The story of bread, Elizabeth Watson.

The story of milk and how it came about, Elizabeth Watson.

The dispensary of the United States of America, Horatio C. Wood et al.

NURSING

A text book of medicine for students in schools of nursing, A. S. Blumgarten.

Nursing mental and nervous diseases from the viewpoints of biology, psychology and neurology, Albert C. Buckley.

Drugs and solution for nurses, Stella Goostray.

Principles of chemistry, Joseph H. Roe.

General nursing questions and answers, Doris Tayler.

DISLOCATIONS OF CERVICAL VERTEBRAE

Editor of THE NEW ENGLAND JOURNAL OF MEDICINE:

In the discussion of Drs. Osgood and Lund's article in the March 7, 1928, number, Dr. Woodman of Franklin, N. H., reports two cases which may well have been one sided dislocations of the cervical vertebrae. And leads me to call attention again to Dr. G. L. Walton's studies of these conditions, many years ago, and to his conclusions as to diagnosis and treatment. So far as I know his work has never been bettered, and constitutes a valuable contribution to the management of these cases. Walton suggests the following treatment for unilateral dislocations. "Perform retro-lateral flexion toward the side toward which the face is turned by the dislocation, then rotate back to place."

I can testify to the success of these simple manipulations, when done under ether anaesthesia.

FRANK M. SHERMAN.

11 Fairview Terrace,
West Newton, Mass.

NEWS ITEMS

THE HARVEY SOCIETY—Dr. George R. Minot, Professor of Medicine, Harvard Medical School, will give the fifth lecture of the current series at the New York Academy of Medicine on "The Treatment of Pernicious (Addison's) Anemia," Friday evening, March 16, at 8:30 o'clock.

TUFTS COLLEGE MEDICAL SCHOOL—The Medical School will be closed from twelve o'clock Saturday noon, March 31st, until nine o'clock Monday morning, April 9th, for the spring recess.

SECOND ANNUAL CONFERENCE ON PUBLIC HEALTH—The Second Annual Conference on Public Health will be held at the building of the American Medical Association, 535 North Dearborn Street, Chicago, on March 30 and 31, 1928.

Official health agencies, including the United States Public Health Service, all state boards of health, and all important volunteer health organizations in the United States have been invited to be represented at this Conference. The topics for discussion will be: Free and Part-Pay Clinics; The Health Demonstration, and a Survey of Surveys.

HARVARD MEDICAL AWARDS—It has been recently reported that students in the three upper classes of the Harvard Medical School have been awarded thirty-one scholarships carrying financial aid for the academic year, the scholarships having been awarded for excellence in work. The recipients are as follows:

Herbert Dan Adams of Ogden, Utah; Weston Turner Buddington of West Mystic, Conn.; Henry Gisler Clarke of West Roxbury, Mass.; William Edwin Davis of Hicks Wharf, Va.; Ira Milburn Dixon of Buffalo, N. Y.; Harold Henry Hamilton of Fulton, Mo.; Albert Bradley Hodgman of Columbus, Ohio; David Hurwitz of Roxbury, Mass.; Robert Jefferson Joplin of Cleburne, Texas; Alfred Kranes of Paterson, N. J.; John Hundale Lawrence of Springfield, S. D.; Gustaf Elmer Lindskog of Roxbury, Mass.; Roy Elbridge Mabrey of Eldorado, Ill.; Milton Leonard Miller of Irwin, Pa.; Chauncy Valentine Perry of Cambridge, Mass.; Hildrus Augustus Poindexter of Philadelphia, Pa.; Elwood Reid Rafuse of Parkdale, N. S.; Lloyd I. Ross of Alliance, Ohio; Nicholas Sarro of Seattle, Wash.; Lewis Sears of Norwich, Conn.; Charles Philip Sheldon of McLouth, Kan.; Jibran Yusuf Skeirik of Lawrence, Mass.; Harry Metcalfe Spence of San Angelo, Texas; Henry Joseph Stanford of New York City; John Dunham Stewart of Monroe, S. C.; Luther Milton Strayer, Jr., of Stratford Conn.; Horace Chilton Sweet of Brownwood, Texas; David William Wallwork of North Andover, Mass.; Vernon Phillips Williams of Minneapolis, Minn., and James Martin Woodall of Macon, Ga.

REPORTS AND NOTICES OF MEETINGS

WORCESTER DISTRICT SOCIETY

A special meeting of the Worcester District Medical Society was held at the Chamber of Commerce on Thursday evening, March 1, 1928. A short business meeting at 6:30 was presided over by President Washburn. Following the business meeting, dinner was served at the Hotel Bancroft.

At 8 o'clock the members gathered again at the Chamber of Commerce and Dr. Washburn introduced Dr. George W. Crile of Cleveland as the speaker of the evening. Dr. Crile's subject was "Factors Which Control the End Results of Operations on the Gall-Bladder and the Thyroid Gland." The speaker described his own technique in the operation of cholecystectomy in which he uses an incision from the ensiform down the costal margin to the external border of the rectus muscle. This incision exposes the gall-bladder plainly and does away with excessive manipulation of the gut and packing. The gall-bladder is dissected from above downward after the cystic duct has been isolated and clamped. This procedure

eliminates a bloody field. By avoiding excessive manipulation and packing, Dr. Crile believes that many of the usual post-operative symptoms are lessened. Discussing thyroidectomies, the speaker emphasized the necessity of considering the age, race, sex and general nervous stability of the patient. Dr. Crile said that it was much better to have a temporary hypo-thyroidism following operation than to have to operate the second time. Dr. Michael Fallon of Worcester discussed Dr. Crile's paper.

After a standing vote of thanks to Dr. Crile, the meeting was adjourned at 9:30.

UNION HOSPITAL IN FALL RIVER

CLINICAL STAFF MEETING

The Regular Monthly Clinical Staff Meeting will be held at the Stevens Clinic on Thursday, March 15, 1928, at 8:15 P. M.

All physicians interested are cordially invited.

M. N. TENNIS, M.D.,
Secretary to Staff.

THE NEW ENGLAND ASSOCIATION FOR PHYSICAL THERAPEUTICS

The next regular meeting of the New England Association for Physical Therapeutics, Inc., will be held Wednesday, March 21st, at 8 p. m., at the Boston Square and Compass Club, 448 Beacon Street, Boston, Mass.

There will be a Symposium on Thyroid disease and its treatment.

Dr. William Benham Snow, New York City, will read a paper on "Consideration and Treatment of the Different Types of Goitre".

Dr. Robert L. Mason, of the Lahey Clinic, Boston, will read a paper on "The Classification and Surgical Treatment of Thyroid Disease".

The papers will be discussed by Dr. Fred W. O'Brien, Dr. Charles A. Porter, Dr. Fred B. Lund, and others.

All regular physicians welcome.

A table d'hote dinner will be served at 6:30 p. m., at the regular price.

The Executive Council will hold a meeting at 6 p. m.

CLAUDE L. PAYZANT, M.D., *President*,
76 Boston Avenue, Medford, Mass.

G. W. DICKINSON, M.D., *Secretary*,
89 Somerset Avenue, Winthrop, Mass.

SOUTH END NEIGHBORHOOD MEDICAL CLUB

The next regular meeting of our Neighborhood Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, March 20, 1928, at 12 noon.

The speaker will be Dr. Charles L. Overlander, Director of the Clinical Laboratory at the Brooks Hospital, 227 Summit Avenue, Brookline. The subject will be: "Some Common Laboratory Methods of Diagnosis". The usual luncheon will follow.

At our last meeting the members voted that they would each donate the sum of $3.00 yearly to cover the expense of our lunches, and Dr. John B. Hall, 60 Windsor Street, Roxbury, was appointed to receive the same.

TRUDEAU SOCIETY OF BOSTON

The next meeting of the Trudeau Society of Boston will be held on Wednesday evening, March 21, 1928, at 8:15 p. m., in John Ware Hall, Boston Medical Library, 8 The Fenway, Boston.

The speaker will be Dr. Edward W. Archibald of Montreal; subject: "Selection of Patients for Surgical Treatment in Pulmonary Tuberculosis." Dr. Wyman Whittemore and Dr. Edward D. Churchill have been asked to lead in the discussion.

Physicians, medical students and nurses are cordially invited to attend this meeting.

RANDALL CLIFFORD, *Secretary.*

SOCIETY MEETINGS

March 15—Union Hospital in Fall River, Clinical Staff Meeting. Detailed notice appears elsewhere on this page.

March 20—South End Neighborhood Club. Complete notice appears elsewhere on this page.

March 21—New England Association for Physical Therapeutics. Complete notice appears elsewhere on this page.

March 21—Trudeau Society. Complete notice appears on this page.

March 30 and 31—Second Annual Conference on Public Health. Complete notice appears on page 224.

June 18-22—Convention of the Catholic Hospital Association. Complete notice appears on page 1597, issue of February 16.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

May 2, 1928 (Wednesday)—Annual meeting at Haverhill, 12:30 P. M., at the Haverhill Country Club, Brickett Hill, Gile Street, Haverhill.

May 3, 1928 (Thursday)—Censors meet for examination of candidates at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. Candidates should apply to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence, at least one week prior.

Essex South District Medical Society

April 11 (Wednesday)—Essex Sanatorium, Middleton. Clinic at 5 P. M. Dinner at 7 P. M.

Dr. Raymond S. Titus, "Obstetrical Emergencies." Discussion by Drs. J. J. Egan of Gloucester and A. T. Hawes of Lynn, 10 minutes each, and from the floor.

May 3 (Thursday)—Censors meet at Salem Hospital for the examination of candidates at 3:30 P. M. Candidates should apply to the Secretary, Dr. R. E. Stone, Beverly, at least one week prior.

May 8 (Tuesday)—Annual meeting. Detailed notice appears on page 1437, issue of January 26.

Norfolk District Medical Society

March 27—Meeting at the Norwood Hospital. Presentation of paper or cases from members of the District.

May 3—Censors' meeting. Roxbury Masonic Temple, 4 P. M. Applications will be mailed by the Secretary upon request.

May 8—Annual meeting. Details to be announced.

Suffolk District Medical Society

Combined meetings of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library, 8 The Fenway, at 8:15 P. M., as follows:

March 28—Medical Section. "The Use and Misuse of Vaccines." Dr. Hans Zinsser, Dr. Francis M. Rackemann, Dr. Charles H. Lawrence.
April 25—Annual meeting. Election of officers. Paper of the evening to be announced later.

The medical profession is cordially invited to attend these meetings.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEWS

History of the Physiological Society during its First Fifty Years—1876-1926, by SIR EDWARD SHARPEY-SCHAFER. Published as a Supplement to the *Journal of Physiology*, December 1927. Cambridge University Press [vi + 198 pp.].

"The Physiological Society" held its first meeting on March 31, 1876, at 49 Queen Anne Street, London. It was the earliest association of its kind in any country and the Society has accordingly jealously guarded its original designation as *The* Physiological Society,—"of London" or "of England" being judiciously omitted. At the first meeting Dr. (later Sir)

John Burdon Sanderson was in the chair. There were also present: Wm. Sharpey, F.R.S., Thos. H. Huxley, F.R.S., Michael Foster, F.R.S., Geo. H. Lewes, Francis Galton, F.R.S., John Marshal, F.R.S., G. M. Humphry, F.R.S., Fk. Wm. Pavy, F.R.S., T. Lauder Brunton, F.R.S., David Ferrier, P. H. Pye-Smith, Wm. H. Gaskell, J. G. McKendrick, E. Klein, F.R.S., E. A. Shäfer, Francis Darwin, Geo. J. Romanes, Gerald F. Yeo. It was proposed by Dr. Foster, seconded by Mr. Lewes, and carried "That an association be formed under the name of 'The Physiological Society' for promoting the advancement of Physiology and facilitating the intercourse of physiologists." In March, 1926, the Society completed its fiftieth year, but as negotiations for the acquisition of the *Journal of Physiology* were then in progress, the Jubilee celebration was deferred until May 13th, 1927.

Sir Edward Sharpey-Schafer is the only original member of the Society still living who has retained active membership throughout its fifty-two years of existence and it is most fitting that he should be the historian. Sir David Ferrier, and Sir E. Ray Lankester, though still living, are no longer members. Professor Sharpey-Schafer has given a delightful account of the early meetings with small photographs and skilful verbal accounts of all of the more important members. The record of each meeting has been abstracted from the minute books, and the volume itself is equipped with an admirable index through which one can trace the activities of any of the members elected prior to 1926. On page 14 a photographic reproduction is found of the autographs of the original members. On a later page (opposite 175) a similar reproduction is given of the autographs of the eighty-five persons who attended the dinner on April 4, 1925, at Leiden. This was the first meeting of the Physiological Society to be held outside Great Britain.

The fact that the oldest physiological society in the world has only lately celebrated its fiftieth anniversary emphasizes the relative youthfulness of physiology as a science. It seems incredible that so much progress has been made in the course of this relatively brief period, and it would be impossible to estimate the enormous influence upon the development of physiology which this, the parent society, has exerted.

The perusal of another edition of Doctor Stiles' small book will give everyone having a little knowledge of biology great pleasure. The book gives a large amount of well selected information about the action of the digestive system and nutrition. It is gratifying to find a frank acknowledgment of antiperistalsis as a normal colonic function in man. Exception may be taken to the statement that the human colon resembles that of the carnivora, as Cannon writes that "the colon of man is of the saculated, herbivorous, rather than the carnivorous type". Several chapters are devoted to different phases of metabolism but relatively little consideration is given to the anabolic processes. The chapters on the hygiene of nutrition are especially illuminating. Some of the subjects discussed in this part of the book are the quantity of food, the peculiarities of protein, constipation, obesity, a comparison of the carbohydrates and fats, meat, tea and coffee, and the acid-base balance. The book contains a few simple, though adequate, illustrations, is well written, and contains a good index.

A Text-Book of Practical Therapeutics. By HOBART AMORY HARE, B.Sc., M.D., LL.D. Twentieth Edition. Lea & Febiger, Philadelphia. 1927.

The fact that this book has reached the twentieth edition indicates that it has been a standard for many years. The first part deals with general therapeutical considerations. Part two discusses the pharmacology of drugs and the third and fourth portions describe remedial measures other than drugs and the therapeutics of diseases.

In the section on drugs one looks in vain for allusion to the United States Pharmacopoea X. There are a number of drugs that should be deleted from this edition. Throughout the author uses a terminology that one more commonly finds in older texts as "depraved mucous membranes" and "phthisical tendencies". To alcohol he attributes a "distinct increase in the bacteriolytic power of the blood in disease", (p. 78) based on some of the author's unconfirmed experiments. Bogan's important contributions on the blood determination of alcohol content in cases of alcoholism is not mentioned. Angina Pectoris is not mentioned under amyl nitrite. Although the liver treatment of pernicious anemia is briefly presented elsewhere, we find the statement that "arsenic offers the best chance of benefiting cases of pernicious anemia." (p. 118.) Further on page 148 one finds that "in exophthalmic goiter belladonna certainly gives relief in some cases, particularly if combined with strophanthin or digitalis. Codeine is prescribed for diabetes "beginning at 1 or 2 grains and rapidly increasing it until the glycosuria is diminished. Sometimes as much as 20 or 30 grains or more may be given daily." p. 243. On page 733 we read that "by far the best means of maintaining hepatic activity in cases where this organ is torpid is horseback exercise, particularly if the exercise is taken on a trotting horse, as the jolting of the liver keeps the chain of digestive functions active and prevents the secretions from becoming clogged." One wonders where the source of the clinical evidence for many of the dogmatic statements emanated.

From the practical standpoint there are interspersed throughout the book points of utility mostly culled from the author's personal experience. To separate the chaff from the wheat is, however, beyond the scope of the ordinary student. Not only are the expressions antiquarian, but they are lacking in acuity of conception. What was formerly the vade mecum of students and practitioners has now become outmoded.

BOOKS RECEIVED FOR REVIEW

Crawford W. Long and The Discovery of Ether Anesthesia, by Frances L. Taylor. Published by Paul B. Hoeber, Inc. 237 pages. Price $4.00.

The Peaks of Medical History, by Charles L. Dana. Published by Paul B. Hoeber, Inc. 105 pages. Price $3.00.

Nutritional Physiology, by Percy Goldthwait Stiles. Published by W. B. Saunders Co. 311 pages. Price $2.25.

Modern Baking Powder, by Juanita E. Darrah. Published by The Commonwealth Press, Inc. 125 pages. Price $1.00.

The Harvey Lectures, by Doctors Neufeld, Chambers, Michaelis, Erlanger, Collis, Willstatter, Jacobs. Published by The Williams & Wilkins Co. 164 pages. Price $4.00.

Troubles We Don't Talk About, by J. F. Montague, M. D. Published by J. B. Lippincott Co. 248 pages. Price $2.00.

Pathological Physiology of Internal Diseases, by Albion W. Hewlett, M. D. Published by D. Appleton & Co. 787 pages.

Gynecology, by Howard A. Kelly. Published by D. Appleton & Co. 1043 pages.

The De Lamar Lectures, 1926-1927. Edited by Chas. E. Simon. Published by The Williams & Wilkins Co. 223 pages. Price $5.00.

Food Infections and Food Intoxications, by Samuel Reed Damon. Published by The Williams & Wilkins Co. 266 pages. Price $4.00.